Before the
**FEDERAL COMMUNICATIONS COMMISSION**
Washington, D.C. 20554

| | | |
|---|---|---|
| In the Matter of | ) | |
| | ) | |
| International Comparison and Consumer Survey Requirements in the Broadband Data Improvement Act | ) | GN Docket No. 09-47 |
| | ) | |
| A National Broadband Plan for Our Future | ) | GN Docket No. 09-51 |
| | ) | |
| Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act | ) | GN Docket No. 09-137 |

# REPLY COMMENTS ON NBP PUBLIC NOTICE #30 OF THE NATIONAL ASSOCIATION OF TELECOMMUNICATIONS OFFICERS AND ADVISORS ("NATOA"); TEXAS COALITION OF CITIES FOR UTILITY ISSUES ("TCCFUI"); MONTGOMERY COUNTY, MARYLAND; CITY OF CHARLOTTE, NORTH CAROLINA; CITY OF DUBUQUE, IOWA; TOWN OF PALM BEACH, FLORIDA; CITY OF HOUSTON, TEXAS; ANNE ARUNDEL COUNTY, MARYLAND; CITY OF LOS ANGELES, CALIFORNIA; PRINCE GEORGE'S COUNTY, MARYLAND; CITY OF BOSTON, MASSACHUSETTS; CITY OF SEATTLE, WASHINGTON; CITY OF DALLAS, TEXAS; AND CITY OF PORTLAND, OREGON

Nicholas P. Miller
Joseph Van Eaton
Matthew K. Schettenhelm
Gail A. Karish
**Miller & Van Eaton, P.L.L.C.**
1155 Connecticut Avenue, N.W., Suite 1000
Washington, D.C. 20036-4306
(202) 785-0600

Counsel for National Association of Telecommunications Officers and Advisors ("NATOA"); Texas Coalition of Cities for Utility Issues ("TCCFUI"); Montgomery County, Maryland; City of Charlotte, North Carolina; City of Dubuque, Iowa; Town of Palm Beach, Florida; City of Houston, Texas; Anne Arundel County, Maryland; City of Los Angeles, California; Prince George's County, Maryland; City of Boston, Massachusetts; City of Seattle, Washington; City of Dallas, Texas; and City of Portland, Oregon

January 27, 2010

**TABLE OF CONTENTS**

Page

## SUMMARY

Some broadband providers hope to use the Broadband Plan to obtain a financial windfall. They are attempting to grab taxpayer property at little or no cost to the companies or their stockholders. These same companies are also seeking "first among all" regulatory privileges to intrude on public rights-of-way to the disadvantage of all other right-of-way users. The Commission must resist these efforts and the related temptations to decide what states and local governments may charge for use of local taxpayer property, including rights-of-way; and to impose, as some companies urge, an artificial restraint on fees tied to some ill-defined and arbitrary concept of the "cost of managing" the rights-of-way.

There is no evidence that limiting fees for use of public property will make broadband more available or affordable for consumers. However, if the Commission issues any pronouncement that fees for rights-of-way or other public resources must be limited to "costs of management" or must be "cost-based;" or if it opines on what is "fair and reasonable compensation" for use of rights-of-way; local governments anticipate immediate and scorching damage to their budgets and to our ailing economy. We expect the broadband providers, consistent with their historic behavior, to immediately stop paying any fees that they unilaterally decide are not within the Commission's formulation. State and local government will face the immediate loss of these revenues and the additional expense of extended and expensive litigation to recoup the non-payments in multiple courts. Hundred of millions of dollars will instantly disappear from state and local budgets, and thousands of state and local jobs – teachers, police, firefighters and others – will be lost. The entire state of Texas, for example, charges right-of-way fees to telecommunications providers based on a state law-mandated per-line charge that is not cost-based. Those charges replaced traditional telephone franchise fees. In Dallas alone, using the Obama administration's stimulus metrics, more than 300 public service jobs, and more

than 250 other jobs in the private sector could be lost. In addition to the massive revenue and employment losses, establishing a federal requirement that right-of-way fees be tied to some calculation of costs would also impose an unfunded mandate to direct scarce state and local government resources to comply with the new regulatory regime, diverting funds from job creation and job maintenance. There is no guarantee that this would add one broadband subscriber or cause one additional mile of construction of broadband facilities. There is considerable evidence it would not. Indeed, funding that state and local governments use to provide broadband to schools, fire stations, police stations, and community centers will disappear: the result is likely to be less, not more broadband.

Many national publications have recently recognized that weaknesses in local and state budgets threaten the entire economic recovery. If the Commission were to embark on anything like this course (and there are many legal and policy reasons why it should not), the Commission must acknowledge the disruption that would be caused and the financial impact that would follow from setting a national standard, and demonstrate that it is willing to impose obligations on the providers that generate benefits which outweigh the costs to the individual public servants that will be asked to sacrifice their jobs in the name of the National Broadband Plan. The FCC does not have evidence of either the costs or the benefits. And it has not even sought comment on what the quid pro quo should be for establishment of the federal conditions, or what the conditions themselves should be.

There is no credible or reliable evidence before the FCC that local fees for rights-of-way or other property, or right-of-way management practices, present a significant barrier to broadband deployment. Even more compellingly, assuming cost-based fees would reduce costs to providers, there is no evidence that the reduced costs would actually result in additional deployment. The data and economic theory suggest the reverse. Reducing costs to broadband providers may result in increased executive bonuses, increased stockholder dividends, additional mergers and other passive investments. It will not result in more broadband deployment in underserved areas – at least, not unless the FCC were to attach stringent buildout requirements on providers as a quid pro quo. The very existence of the need for a National Broadband Plan is driven by the unwillingness of the commercial providers to deploy the new broadband networks in underserved areas. The industry shows no inclination, absent federal or local buildout requirements, to engage in such projects. Attempting to toss money at corporations without clear conditions and a clear quid pro quo is a recipe for enriching the rich at the expense of the ordinary taxpayer. If the goal is to artificially reduce corporate costs in the hope that the corporations may expand broadband deployment, it is a foolish goal, unsupported by experience or sound economics, and in today's state and local government economic environment, a formula for disaster.

Broadband policy has thus far pursued a "trickle down" approach: utilities have obtained significant benefits in the form of increased and rapid depreciation deductions that reduce effective tax rates or justify higher rates to consumers, reduced regulation, and other incentives. But there have been few social or regulatory obligations enforced to require deployment of broadband. The current proceeding puts the lie to the plaintive argument that deployment will happen if providers are given enough benefits. The experiment has been tried, and has not succeeded.

There are alternatives. If the FCC concludes that cost is a barrier to deployment in some areas, the economically sound course would be for the federal government to provide directed subsidies in return, and only in return, for actual enforceable promises of deployment. Dollars spent must lead to results. As importantly, the nation's local governments have worked, and continue to work, to encourage broadband deployment and adoption; they are enthusiastic partners in the Commission's efforts to ensure that this nation is served by a modern, high bandwidth system that supports innovative applications and spurs development of new business. By encouraging and providing a forum for local governments to develop and exchange best practices, the Commission could create a pool of shared knowledge that will result in more and faster broadband deployment. Broadband deployment can be spurred if local governments are encouraged to act as market participants, to freely exchange assets, and to consolidate "anchor tenants" in return for enforceable promises by broadband providers to deploy.

These are the courses the Commission ought to pursue. The Commission need not and should not in this proceeding, or any other, impose risky and costly federal standards on local governments for management and compensation for use of public property.

Before the
**FEDERAL COMMUNICATIONS COMMISSION**
Washington, D.C. 20554

| | | |
|---|---|---|
| In the Matter of | ) | |
| | ) | |
| International Comparison and Consumer Survey Requirements in the Broadband Data Improvement Act | ) | GN Docket No. 09-47 |
| | ) | |
| A National Broadband Plan for Our Future | ) | GN Docket No. 09-51 |
| | ) | |
| Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act | ) | GN Docket No. 09-137 |

**REPLY COMMENTS ON NBP PUBLIC NOTICE #30 OF THE NATIONAL ASSOCIATION OF TELECOMMUNICATIONS OFFICERS AND ADVISORS ("NATOA"); TEXAS COALITION OF CITIES FOR UTILITY ISSUES ("TCCFUI"); MONTGOMERY COUNTY, MARYLAND; CITY OF CHARLOTTE, NORTH CAROLINA; CITY OF DUBUQUE, IOWA; TOWN OF PALM BEACH, FLORIDA; CITY OF HOUSTON, TEXAS; ANNE ARUNDEL COUNTY, MARYLAND; CITY OF LOS ANGELES, CALIFORNIA; PRINCE GEORGE'S COUNTY, MARYLAND; CITY OF BOSTON, MASSACHUSETTS; CITY OF SEATTLE, WASHINGTON; CITY OF DALLAS, TEXAS; AND CITY OF PORTLAND, OREGON**

## INTRODUCTION

The National Association of Telecommunications Officers and Advisors ("NATOA"); Texas Coalition of Cities For Utility Issues ("TCCFUI"); Montgomery County, Maryland; City of Charlotte, North Carolina; City of Dubuque, Iowa; Town of Palm Beach, Florida; City of Houston, Texas; Anne Arundel County, Maryland; City of Los Angeles, California; Prince George's County, Maryland; City of Boston, Massachusetts; City of Seattle, Washington; City of Dallas, Texas; and City of Portland, Oregon ("the Parties"), through their undersigned counsel, respectfully submit these comments in response to the Commission's Public Notice, DA 10-61, released Jan. 13, 2010.

The Parties have closely monitored and actively participated in many of the activities undertaken by the Commission since it initiated this proceeding by Notice of Inquiry dated April 8, 2009. They welcome the opportunity to make this final set of reply comments to address several important matters raised in this proceeding, and to address comments made by others parties during the course of these proceedings. While the proceeding raises many issues of concern to local governments – many of which have been addressed in prior filings - these comments will focus on issues raised in this proceeding with respect to the use and management of publicly-owned property, including public rights-of-way, and also facilities and structures such as conduits, light poles, rooftops and the like.

There is no credible evidence in this proceeding that broadband deployment is being deterred in any significant way by local right-of-way management policies, or by fees for use of rights-of-way or other public property. Nevertheless, several commenters have asked the FCC to establish a major new federal regulatory regime with unfunded mandates aimed not at providers of services and facilities but at local governments.[1] These commenters generally argue that the

[1] Qwest makes the inaccurate claim that Section 253 was enacted because: "[e]xperience shows that municipal monopoly control, when not carefully circumscribed, leads to burdensome right-of-way regulations and fees, which frustrate and undermine the development and advancement of a nationwide broadband infrastructure." Comments of Qwest Communications International Inc., GN Docket No. 09-51 at 27 (June 8, 2009), *see infra*, Part I. Qwest refers to suits it has filed against local governments over right-of-way issues in New Mexico, Maryland and St. Louis. *Id*. at 29-31. While Qwest has been an active litigant, it is perhaps more accurate to say that it has demanded that public property be provided to it for the cost of permits, and is here asking the Commission to essentially create a permanent federal subsidy for itself. It is notable that in the case in which Qwest had the opportunity to show that local right-of-way fees or management practices had a prohibitory effect on deployment, it was unable to identify any service it had been prevented or even deterred from providing. *Qwest Corp. v. City of Portland*, 200 F. Supp. 2d 1250, 1256 (D. Or. 2002); *see also Time Warner Telecom of Oregon, LLC v. City of Portland*, 322 Fed. App. 496 (9th Cir. 2009). Level 3 references "unreasonable franchise

Commission has authority under 47 U.S.C. § 253 to regulate directly local and state management of rights-of-way and other property, and to regulate charges for use of rights-of-way and other local property.[2] Others have asked the Commission to make Section 253 rulings

---

fees" and "lengthy negotiations" without any verifiable examples. Comments of Level 3 Communications, LLC, GN Docket No. 09-51 at 19 (June 8, 2009). Level 3 has filed a separate petition in regard to the right-of-way rents charged by the New York State Thruway Authority (Public Notice, *Wireline Competition Bureau Seeks Comment on Level 3 Communications' Petition for Declaratory Ruling That Certain Right-of-Way Rents Imposed by the New York State Thruway Authority are Preempted Under Section 253*, DA 09-1878, WC Docket No. 09-153 (Released Aug. 25, 2009)), but even if Level 3's claims with respect to that authority were accurate, Level 3 is the successor in interest to a prior operator that was ready, willing and able to enter into the contract and provided services successfully under the freely negotiated contract with NYSTA. These facts hardly indicate a significant or serious problem. USTA claims that "there is a large and diverse body of record evidence in numerous proceedings that details how exorbitant costs associated with access to essential infrastructure, such as rights-of-way, have a negative impact on broadband deployment." Comments of the United States Telecom Association, GN Docket No. 09-51 at 4 (Sept. 24, 2009). However, USTA's examples of this "large and diverse body of record evidence" concerning *rights-of-way* were all but absent – just one citation to a Commission report (*Rural America, Report on a Rural Broadband Strategy,* May 22, 2009) that concluded that "[t]imely and reasonably priced access to poles and rights of way is critical to the buildout of broadband infrastructure in rural areas." *Id*. at 2, 4-5. In a November 2009 filing, Sunesys made claims that the Commission urgently needed to act to "clarify the standards related to timely and reasonably priced access to necessary governmental rights-of-way" without offering any evidence of its own as to the alleged problems, but instead relying on the Level 3 petition and comments made by others in that proceeding. Comments of Sunesys, LLC-NPB Public Notice #7, GN Docket No. 09-51, at 4 (Nov. 6, 2009). The Massachusetts Broadband Institute claims, also without offering evidence, that "[t]he difficulties involved in negotiating and gaining access to the rights-of-way often prove to be the greatest impediment to the efficient, cost-effective, and timely deployment of broadband." Massachusetts Broadband Institute, *ex parte* at 2 (Jan. 8, 2010).

[2] Sunesys urges the Commission to issue rulings and clarifications to resolve a number of alleged areas of disagreement or uncertainty regarding Section 253. Comments of Sunesys, LLC-NBP Public Notice #7, GN Docket No. 09-51 at 5-11 (Nov. 6, 2009). Qwest asks the Commission to issue authoritative rulings on Section 253 issues and to "reassert" its authority in the wake of recent "dangerous" Circuit court holdings in *Sprint Telephony PCS, L.P. v. County of San Diego,* 543 F.3d 571 (9th Cir. 2009) and *Level 3 Comm., LLC v. City of St. Louis*, 477 F.3d 528 (8th Cir. 2007). Comments of Qwest Communications International, Inc., GN Docket 09-51 at 26-33 (June 8, 2009). The claims Qwest makes here are very similar to those it made without success in asking the Supreme Court to review those "dangerous" rulings, *viz,* that the rulings sharply depart from other precedents and reflect a massive confusion in the courts. But as the Supreme Court's rejection of the requests suggests – and as filings by the Solicitor General indicate – these claims are based on a gross distortion of the case law. *Time Warner Telecom v. City of Portland*, No. 06-36023, slip. op. at 4, 2009 WL 965816 ¶ 1 (9th Cir. Apr. 8, 2009). *Level 3*

affecting local right-of-way management and fees related to deployment of specific technologies.[3] The Section 253 arguments are not only misguided as a matter of law, but are based on errors of fact as shown by three studies attached to these comments. The first by Drs Ed Whitelaw and Bryce Ward of ECONorthwest ("ECONW") explains that charging fair market

---

*Communications, LLC v. City of St. Louis* and *Sprint Telephony PCS v. San Diego County*, U.S. S.Ct. Docket Nos. 08-626 and 08-759, Brief for the United States as Amicus Curiae ("St. Louis Amicus Brief") at 8. Level 3 seeks a ruling on permit issuance. Comments of Level 3 Communications LLC, GN Docket No. 09-51 at 20 (June 8, 2009). ("In order to avoid delays, the Commission should issue a rule that requires states and municipal governments to issue permits for the construction of broadband networks before a franchise agreement is in place. The important objective is to deploy broadband networks as quickly as possible and the Plan should not allow unreasonable compensation demands to thwart that goal.") Level 3 does not provide specific examples of the problem it claims must be addressed. What is clear is that on more than one occasion, Level 3 was allowed into the market, and then refused to pay the rents it agreed to pay, often years after the relevant contracts were filed. *Level 3 Comm., LLC v. City of St. Louis*, 473 F.3d 528 (8th Cir. 2007). The effect of allowing entry first and then allowing for compensation to be resolved later is to give providers an incentive to litigate – since it would delay payment obligations.

[3] While a number of distributed antenna system ("DAS") providers (*for e.g*., NextG at 9-11 (Sept. 3, 2009); Comments of NewPath at 6-9 (Sept. 30, 2009); Comments of ExteNet at 6-7 (Sept. 30, 2009)) claim municipalities are a deterrent to distributed antenna system deployment, and provide some limited anecdotal evidence of apparent disputes with municipalities, it appears the perceived problems identified may stem from the fact that DAS providers contend that neither they nor their technology are covered by existing right-of-way and zoning rules. But if DAS providers refuse to follow local rules, or claim that rules do not apply, they can hardly complain when the result is that local communities must take the time to examine the technology to determine whether different rules *should* apply, and what those rules should be (the technology used by DAS can be highly intrusive, aesthetically disruptive, and in some cases unsafe because of the substantial additional obstructions and overhead extensions required to existing structures in the rights-of-way). Nor do the claimed differences in the technology justify the Commission establishing uniform national standards for right-of-way engineering, construction, use or other specific regulations restricting the local community's ability to manage the deployment of DAS technology in their rights-of-way. Comments of NewPath at 11-12 (Sept. 30, 2009); Comments of NextG at 11-16 (Sept. 30, 2009); Comments of ExteNet at 9 (Sept. 30, 2009). In fact, given that the Commission has not a single civil engineer position designated on its staff, nor any practical experience in right-of-way management, it is precisely in such circumstances that the Commission ought to ensure that those who *do* have the experience can examine the technology and its interaction with other right-of-way requirements, and bring that experience to bear. The Commission does that not by supplanting local government, or by adopting federal rules; it does that by partnering with other entities in our federal system of government *see infra*, Part II.

value for property encourages effective broadband deployment, and that setting prices based on operating or management costs (as some providers propose) would result in a subsidy, at the expense of the public, and is inconsistent with sound economics. Attachment A, "Economic Principles of Charging Fees To Access Government Trust Properties." Dr. Connie Book prepared a second study, which examines the effect of state laws that were designed to reduce alleged barriers to entry caused by broadband deployment. She finds that those laws have not resulted in significant deployment to underserved areas, while local involvement has promoted broadband deployment. Attachment B, "Effects Of Reducing Local Control On The Availability And Affordabilty Of Broadband." Finally, Garth Ashpaugh of Ashpaugh & Sculco describes the work that can be involved in developing cost-based rates, and shows that requiring rates to be based on costs will impose significant unfunded mandates on local government, and result in significant litigation and pricing confusion. That is, it will create problems, not solve them. Attachment C, "Issues Associated With Developing Cost-Based Prices For Use Of Public Rights Of Way And Other Property."

Taken together, the information presented in these comments and the reports demonstrate:

- There is no evidence that local or state permitting practices, or local or state requirements for compensation, are prohibiting or creating significant barriers to broadband deployment. The evidence instead demonstrates that localities have spurred broadband deployment by using their police power authorities and contract rights related to use of public property to require reasonable build-out. Indeed, markets where local governments license the use of right-of-way, charge fair market value to all users for use of the rights-of-way, and adopt permitting procedures applicable to a wide range of providers are among the most competitive and well-served markets in the country.

- Establishing federal standards for right-of-way permitting or compensation – even if lawful (and we do not believe it is) – will not increase broadband deployment (providers will simply cherry pick high revenue areas), but there is an immediate risk that it will shift costs to other right-of-way users and local taxpayers, and reduce revenues for local governments. The effect will be lost jobs and declining

- Basic economics teaches that allowing local governments to obtain fair market value for use of local resources is the most efficient way to allocate the limited right-of-way resource. Pricing right-of-way and other property in a manner that forces broadband providers to internalize their costs of deployment is the most effective and sustainable policy to further broadband deployment. There is no reason to subsidize providers using right-of-way to the disadvantage of providers using wireless technologies. Factually, there is no reason to fear that governments will use alleged “monopoly control” over rights-of-way to discourage broadband entry. The contrary is true: as explained in the ECONW Report local governments have substantial incentives to encourage local development and to ensure good services are available to the public. They have no incentives to price facilities to discourage deployment. Further, limiting local governments’ ability to obtain fair market value for property used will subsidize and encourage entry into markets where property is most valuable – that is, the high density urban markets – and make it even less likely that broadband will be deployed in the rural markets.

- Many local governments are using their assets – property, poles, conduit and fiber – in creative ways to bring services to local anchor institutions and to introduce a measure of competition in the market. The FCC can best encourage this continued activity by affirming that this local and state government activity is a valuable contribution to the broadband plan – and by making it clear that it will not interpret federal law in a manner that discourages these activities – which would be the result of reading Section 253 as urged by some of the commenters.[4]

Finally, the FCC must also recognize that, setting aside the questionable legality of the Section 253 interpretations advocated by some, any regime that is aimed at regulating local and state governments and establishing a single, national standard for permitting or compensation will necessarily add significantly to the regulatory costs of entry. Both providers and local

---

[4] *See* Comments of NATOA, *et al.*, GN Docket Nos. 09-47, 09-51, 09-137 (Nov. 6, 2009); Comments of the City and County of San Francisco on National Broadband Plan Public Notice #7, GN Docket Nos. 09-47, 09-51, 09-137 (Nov. 6, 2009).

jurisdictions will be hurt by this unnecessary cost. Such a scheme would ignore new conditions, and instead lock localities into Washington D.C.'s 2010 view of public property management and compensation – until Washington gets around to changing its approach. The DAS industry petition, cited above in n.3, is a perfect illustration of the problem with this approach: if Washington establishes permitting standards, those standards will control regardless of whether they are appropriate in particular circumstances. Every deviation would either expose a locality to litigation, or require a petition to the FCC. That is a formula for stultification and delay, not deployment.

# I. ESTABLISHING FEDERAL COMPENSATION AND PERMITTING STANDARDS IS UNLAWFUL, WOULD DETER BROADBAND DEPLOYMENT, AND INCREASE UNEMPLOYMENT.

## A. The FCC Has No Authority to Establish National Permitting or Compensation Standards To Encourage Broadband Deployment.

### *1. The FCC Has Previously Recognized That It Does Not Have Jurisdiction Generally Over Public Property.*

As the D.C. Circuit recently reminded the Commission:

> The FCC, like other federal agencies, "literally has no power to act . . . unless and until Congress confers power upon it." The Commission "has no constitutional or common law existence or authority, but only those authorities conferred upon it by Congress." Hence, the FCC's power to promulgate legislative regulations is limited to the scope of authority Congress has delegated to it.

*American Library Ass'n. v. FCC*, 406 F.3d 689, 698 (D.C. Cir. 2005) (citations omitted). Courts have long held that an agency exceeds its authority when, acting through an entity that is subject to the agency's jurisdiction, it attempts to regulate a third party or that third party's property – even when the regulation might advance salutary regulatory goals.[5]

[5] *See, e.g., Ambassador, Inc. v. United States*, 325 U.S. 317, 323 (1945); *New England Legal Found. v. Mass. Port Auth.*, 883 F.2d 157, 173-74 (1st Cir. 1989).

The Commission recognized this principle in *California Water & Tel. Co.*, 40 R.R.2d 419 (1977), a case decided before the adoption of the Pole Attachment Act,[6] whose provisions, as amended, now appear at 47 U.S.C. § 224:

> The fact that cable operators have found in-place facilities convenient or even necessary for their businesses is not sufficient basis for finding that the leasing of those facilities is wire or radio communications. If such were the case, *we might be called upon to regulate access and charges for use of public and private roads* and right of ways essential for the laying of wire, *or even access and rents for antenna sites*.

*Id*. at ¶ 15 (emphasis added). The Commission recognized that the Communications Act of 1934 applied to "communication by wire or radio" and to "all persons engaged . . . in such communication or such transmission . . . ." 47 U.S.C. § 152(a). Thus, absent a specific authorization, the Commission would not have authority to regulate property merely because the property is useful in the delivery of communications services.[7] Congress agreed with the Commission's view, and in 1978, Congress enacted the Pole Attachment Act, "to establish jurisdiction within the [Commission] to regulate the provision by utilities to cable television systems of space on utility poles, ducts, conduits, or other rights-of-way owned or controlled by those utilities."[8] Certain utilities – including state and local utilities – are not subject to regulation under the Pole Attachment Act, and the Commission has no authority, and has never exercised authority with respect to such utilities, their poles, their conduits, or their rights-of-way. The conclusions of the Commission in *California Water & Telephone* apply with equal force now. If the Commission needed express authority from Congress to regulate property

---

[6] 92 Stat. 35 (1978), codified at 47 U.S.C. § 224.

[7] Of course, the FCC may exercise ancillary jurisdiction over various communications by wire. However, as the court in *American Library Association* noted, 406 F.3d at 700, when the matter the agency seeks to regulate is not encompassed by the agency's general jurisdictional grant, it creates an "insurmountable hurdle" to the assertion of ancillary jurisdiction. That is certainly the case with respect to regulation of public property.

[8] S. REP. 95-580, 95th Cong., 1st Sess. at p. 1.

controlled by municipally-owned utilities, it likewise must have explicit authority to regulate other municipally-owned property.[9]

***2. Section 253 does not supply that authority.***

Section 253 does not supply the authority that is otherwise clearly absent in the Act, particularly here, where commenters are urging the Commission to take actions to encourage broadband deployment.

(a) Section 253 does not apply to broadband.

Section 253(a) is narrowly focused on statutes, regulations, or legal requirements similar to statutes and regulations that "prohibit" or "have the effect of prohibiting" the ability to provide telecommunications service:

> No State or local statute or regulation, or other State or local legal requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service.

47 U.S.C. § 253(a). Congress enacted Section 253 to uproot state and local regulatory systems that preserved *telephone* monopolies:

> Congress apparently feared that some states and municipalities might prefer to maintain monopoly status of certain providers, on the belief that

[9] In the legislative history to the Pole Attachment Act, Congress was careful to point out that it was not expanding the Commission's general jurisdictional grant:

S. 1547, as reported, would not require the Commission . . . 'to regulate access and charges for use of public and private roads and right-of-ways essential for the laying of wire, or even access and rents for antenna sites.' The communications space must already have been established, meaning that FCC jurisdiction arises only where a pole, duct, conduit, or right-of-way has already been devoted to communications use, and the communications space must already be occupied by a cable television system. Hence any problems pertaining to restrictive easements of utility poles and wires over private property, exercise of rights of eminent domain, assignability of easements or other acquisitions of right-of-way are beyond the scope of FCC catv pole attachment jurisdiction.

S. REP. No. 580, 95th Cong., 1st Sess. at 124. Only in 1996 did Congress expand Section 224 to include a right of nondiscriminatory access, and even that right does not extend beyond privately-owned "utilities."

> a single regulated provider would provide better or more universal service. § 253(a) takes that choice away from them, thus preventing state and local governments from standing in the way of Congress' new free market vision.

*Cablevision of Boston, Inc. v. Pub. Improvement Comm'n*, 184 F.3d 88, 97-98 (1st Cir. 1999); *see also AT&T Corp. v. Iowa Utils. Bd.*, 525 U.S. 366, 405 (1999) (Thomas, J., concurring in part, dissenting in part) ("Congress ended the States' longstanding practice of granting and maintaining local exchange monopolies.").[10] In other words, Section 253 scope is limited: it reaches statutory and regulatory prohibitions on the ability to provide telecommunications services, and nothing else. The Telecommunications Act of 1996, at Section 601(c), 47 U.S.C. § 152 nt., cements this narrow interpretation by providing that nothing in the Act or the amendments to the Act shall be construed to "modify, impair or supersede" state or local law unless expressly so provided in the Act.[11]

This proceeding does not simply involve telecommunications services. Its focus is on broadband facilities and on broadband services – including, primarily, services that the Commission has broadly classified as "information services." In *In re Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities*, 17 FCC Rcd. 4798 (2002), *aff'd.*, *NCTA v. Brand X Internet Servs.*, 545 U.S. 967, 988 (2005), the FCC rejected the notion that such services were telecommunications services. Under those decisions, many broadband providers avoided obligations that would otherwise apply to telecommunications service

---

[10] Qwest's claim that Section 253 was concerned with right-of-way pricing is not supported and is actually contradicted by this legislative history, as further explained *infra*.

[11] Congressional intent to preempt must be "absolutely certain" and "unmistakably clear." *Gregory v. Ashcroft*, 501 US 452, 464, 476 (1991). Statutes that preempt must be read narrowly. *Cipollone v. Liggett Group, Inc.*, 505 US 504, 516 (1992); *Medtronic, Inc. v. Lohr*, 518 US 470, 485 (1996). There is a duty "to accept the reading that disfavors preemption." *Bates v. Dow Agrosciences, LLC*, 125 S. Ct. 1788, 1801 (2005); *Altria Group, Inc. v. Good*, 129 S. Ct. 538, 543 (2008). In this case it is absolutely clear that Congress did not mean to preempt.

providers under Title II. These providers cannot now claim that they are entitled to the benefits of Section 253. [12]

(b) Even where Section 253 does apply, it does not give the agency authority to set national permitting standards, or to set national compensation standards.

Section 253(a) does one thing: it preempts local laws that prohibit the ability of a person to provide telecommunications services. The section imposes no affirmative duty on the part of a state, a local government, or a private party to contribute property to providers to make it easier to provide telecommunications services, or to afford them any special treatment. *Cablevision of Boston, supra*. Section 253(d) confines the Commission's authority with respect to issues arising under Section 253: the Commission is permitted to "preempt the enforcement" of a particular offending statute "after notice and comment" and then only where a case involves only Sections 253(a) and Section 253(b). The Commission thus has no authority to set rates for access to, or to establish the terms and conditions for access to public property, generally – its authority in that respect remains exactly what it has been.

Further, most of the issues raised in the comments relate to management of the public rights-of-way and charges for use of the rights-of-way. Section 253(c) makes it clear that *nothing in this Section* "affects the authority" of a state or local government to "manage the public rights-of-way" or to require "fair and reasonable compensation" for use of the public rights-of-way, even where doing so would have a prohibitory effect. Section 253(d), when

---

[12] Of course, the Commission may, at some point, revisit the *Brand X* decision and subsequent decisions, but until and unless it does so, Section 253 has no application to "information services." Level 3 dances around the issue by referencing Section 253's prohibition language – no local legal requirement "may prohibit or have the effect of prohibiting the ability of any entity to provide interstate or intrastate telecommunications service." – and then stating: "Insofar as broadband services are acknowledged to be interstate in nature, it is critical that the Commission remove barriers that exist to the deployment of broadband services by virtue of unbalanced rights of way statutes or ordinances." Comments of Level 3 Communications LLC, GN Docket No. 09-51, at 18 (June 8, 2009).

discussing the scope of the Commission's authority, mentions Sections 253(a) and (b), but explicitly excludes Section 253(c), leading the three circuit courts that have discussed the issue to conclude that Congress deliberately and expressly stripped the Commission of jurisdiction to decide issues arising under Section 253(c). *BellSouth Telecomms., Inc. v. Town of Palm Beach*, 252 F.3d 1169, 1177 (11th Cir. 2001); *TCG Detroit v. City of Dearborn*, 206 F.3d 618 (6th Cir. 2000); *Qwest Corp. v. City of Santa Fe*, 380 F.3d 1258 (10th Cir. 2004); *see also Sw. Bell Tel., L.P. v. City of Houston*, 529 F.3d 257 (5th Cir. 2008).

Those decisions are supported by clear legislative history. As Senator Feinstein explained, an earlier version of Section 253(d) would have empowered the Commission to resolve disputes under all subsections of the statute:

> The preemption gives any communications company the right, if they disagree with a law or regulation put forward by a State, county, or a city, to appeal that to the FCC. That means that cities will have to send delegations of city attorneys to Washington to go before a panel of telecommunications specialist at the FCC, on what may be very broad questions of State or local government rights. . . . If the preemption provision remains, a city would be forced to challenge the FCC ruling to gain a fair hearing in Federal court. This is important because presently they can go directly to their local Federal court. Under the preemption, a city, State, or county government would have to come to the Federal court in Washington after an appeal to the FCC…

141 Cong. Rec. S8170-71 (daily ed. June 12, 1995). Accordingly, Senator Feinstein proposed striking subsection (d) in its entirety. *Id.* As a compromise, Senator Gorton offered a second-degree amendment that removed subsection (c) from Section 253(d), revising subsection (d), so that FCC jurisdiction extended only to subsections (a) and (b), not subsection (c). *Id*. at S8306. He indicated he agreed with Senator Feinstein and Senator Kempthorne regarding "control by cities and other local communities over their own rights-of-way, an area in which their authority should clearly be preserved." 141 Cong. Rec. S8212 (daily ed. June 13, 1995). Senator Gorton also clearly explained the effect of his amendment:

> There is no preemption . . . for subsection (c) which is entitled, "Local Government Authority," and which is the subsection which preserves to local governments control over their public rights of way. It accepts the proposition from [Senator Feinstein and Senator Kempthorne] that these local powers should be retained locally, that any challenge to them take place in the Federal district court in that locality and that the Federal Communications Commission not be able to preempt such actions.

*Id.* at S8213. Senator Gorton's amendment was adopted by unanimous consent. *Id*. at S8308.

Interestingly, Senator Feinstein and Senator Kempthorne were not merely concerned about the burdens local governments must endure to defend their actions in Washington, DC. They were also concerned about whether the Commission or the local government would be entitled to deference when a court reviews local right-of-way decisions:

> A city appealing an adverse ruling by the FCC would appear before the D.C. Federal Appeals Court rather than in the Federal district court of the locality involved. *Further, the Federal court will evaluate a very different legal question—whether the FCC abused their discretion in reaching its determination.* The preemption will force small cities to defend themselves in Washington, and many will be just unable to afford the cost. By contrast, if no preemption exists, the cable company may challenge the city or State action directly to the Federal court in the locality and the court will review *whether the city or State acted reasonably* under the circumstances.

141 Cong. Rec. S8171 (daily ed. June 12, 1995) (statement of Sen. Feinstein) (emphasis added). When industry commenters argue that the FCC should adopt national compensation or permitting standards, *precisely because (they claim) those standards would be entitled to deference,* they are, in effect asking the Commission to do what Congress said it did not want the Commission to do. Moreover, the Commission is not being asked to preempt on a case-by-case basis, as permitted when it may hear a case under Section 253(d); it is being asked to affirmatively establish the terms and conditions for access to property and for management of that property, something it specifically *cannot* do under Section 253, and which it is not empowered to do under any other provision of the Act.

Congress might have attempted to draft Section 253 to mandate access to all state or local government property and to dictate federal rental terms for its use. But Congress did no such thing. Section 253 neither mandates access to all State and local property, nor gives the FCC the power to regulate price terms. The legislative history reflects this:

> [W]e should be with out local city mayors, our local city councils, because we are for true Federalism, we are for returning power as close to the people as possible, and that is what the Stupak-Barton amendment does. It explicitly guarantees that cities and local governments have to right to not only control access within their city limits, but also to set the compensation level for the use of that right-of-way. It does not let the city governments prohibit entry of telecommunications services providers for pass through or for providing service to their communities. [but]. . . The Federal Government has absolutely no business telling State and local government how to price access to their local right-of-way. We should vote for localism and vote against any kind of federal price controls.

141 Cong Rec. H8460 (daily ed. Aug. 4, 1995) (statement of Rep. Barton).[13] Structurally, Section 253(c) does not authorize the Commission to take any action. It protects "fair and reasonable" compensation from preemption by the courts, even if that compensation is established by a statute that otherwise prohibits or effectively prohibits the ability to provide telecommunications services within the meaning of Section 253(a). The Commission is not authorized, as it is under Section 201, to set rates or review them; the authority to set rates is thus left to states and localities. It follows that the Commission cannot dictate the method that must be used to set fair and reasonable rates. Such and action necessarily assumes that there is only one formula, or one means by which rates may be set at reasonable levels. But in a variety of regulatory situations, the Supreme Court has repeatedly rejected that argument, *Mobil Oil Corp. v. Fed. Power Comm'n*, 417 U.S. 283, 316 (1974); *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591, 602 (1944) (noting that the entity responsible for setting rates is was "not

[13] Congress adopted the Stupak-Barton amendment by a lopsided 338-86 margin. 141 Cong. Rec. H8477.

bound to the use of any single formula or combination of formulae in determining rates").[14] Commenters are asking the Commission to extend its jurisdiction in a manner that is inconsistent with the Communications Act.

The limits on Section 253 are underscored by Section 224 of the Act, 47 U.S.C. § 224. The statute empowers the FCC to regulate the prices for pole attachments: "[T]he Commission shall regulate the rates, terms, and conditions for pole attachments to provide that such rates, terms, and conditions are just and reasonable. . . ". 47 U.S.C. § 224(b)(1). Section 224 also affirmatively opens utility property to third parties: "A utility shall provide a cable television system or any telecommunications carrier with nondiscriminatory access to any pole, duct, conduit, or right-of-way owned or controlled by it." 47 U.S.C. § 224(f)(1). But, critically, Section 224 does *not* apply to state or local governments. 47 U.S.C. § 224(a)(1) (defining "utility" to exclude any person owned by the federal government or any state).[15]

---

[14] It is hard to imagine how the Commission could rule that it "unfair and unreasonable" for a locality to charge fees that are similar to fees charged for similar property. As the ECONW Report shows, economists recognize that reasonable rates can be and are set using a variety of methods, and may take the form of fees based on gross revenues, per foot charges, or some other measure.

[15] A few commenters suggest that the Commission should take this opportunity to encourage Congress to revisit the exemption of electric cooperatives and municipalities from the application of the Pole Attachment Act. They offer no verifiable evidence that justifies upsetting this longstanding exemption. For example, NCTA, p. 36, simply states: "Currently, broadband providers are subject to excessive, unjustified rates and other onerous terms and conditions in areas where poles are not subject to regulated rates." This accusation is not supported.

In our view, the Commission should not heed these calls to recommend to Congress that the current exemptions in the Pole Attachment Act be removed. There is simply no reason to adopt such a course, which would affect not only pole utilities, but water utilities, sewage utilities and other critical municipal utilities. The National Rural Electric Cooperative Association has provided a thorough response defending the cooperatives exemption. We add here a few comments on the rationale for the municipal/cooperative exemption. The reason Congress chose not to regulate the fees for attaching to municipal poles is that approach is consistent with the general exemptions for pricing for municipally-owned property, that is, the prices are subject to a built-in check at the ballot box to prevent abuses ("…the pole rates charged by municipally owned and cooperative utilities are already subject to a decisionmaking process based upon

This limitation reflects an important respect for Federalism, and the limits on the federal government's power. To allow the FCC to dictate terms for right-of-way management would essentially be to transfer to it police power over the streets and roads for a select class of users. But it is highly questionable whether the federal government may exercise such authority, or regulate its exercise by the states consistent with the Constitution and the Tenth Amendment. Likewise, to ask the FCC to limit localities to recovering out-of-pocket costs for use of the rights-of-way raises significant Fifth Amendment issues. *United States v. 50 Acres of Land*, 469 U.S. 24, 31 (1984). Congress' choice, reflecting as it does fundamental constitutional values, must be respected: the FCC has no authority to set national standards for permitting or compensation to encourage broadband deployment.[16]

### B. There is No Reason for the Commission To Use This Proceeding To Expound Upon Section 253, In Any Case.

The purpose of this proceeding is to meet the Congressional mandate to develop a National Broadband Plan. The American Recovery and Reinvestment Act of 2009 (Recovery Act) directs the Commission to create a National Broadband Plan that seeks to ensure that every

---

constituent needs and interests." S. Rep. No. 95-580, at 18 (1977), *as reprinted in* 1978 U.S.C.C.A.N. 109, 126). In addition, many municipal utilities are relatively small – including, for example, many in the rural areas about which NCTA complains. Adding to the burdens already facing these utilities – when rates are already subject to substantial checks – will cause harm, without obvious benefit.

[16] The Commission's pre-Cable Act adoption of franchise fee limits on cable service does not provide a precedent for direct Commission regulation of public rights-of-way or fees charged for use of public rights-of-way. Prior to the Cable Act, the Commission reserved the authority to license cable systems, and a cable system could not operate without a license from the Commission; the Commission refused to license cable systems where the system would be subject to a fee that exceeded federal minimums. The FCC's pre-Cable Act rules did not require local governments to authorize cable systems to use their streets, but if cable service was desired (as it was), the effect of the FCC rule was to require the cable operator and the community to hew to the FCC limits. However, what the FCC was regulating was not the locality, but the federal law requirements that a cable operator had to satisfy to enter the market. What commenters are proposing here, in contrast, is direct Commission regulation of states and localities without authorization.

American has access to broadband capability and establishes clear benchmarks for meeting that goal. Despite some commenters suggestions to the contrary, it is not necessary to address Section 253-related matters as part of the development of the National Broadband Plan.

***1. The courts are not in disarray as to the meaning of Section 253.***

Commenters argue that courts are in disarray as to how to interpret section 253.[17] The Courts are in fact coalescing around a standard for Section 253(a) that is consistent with the Commission's own standards for analyzing Section 253 claims, as announced in *In re Classic Telephone*, FCC Rcd. 13082, 13110 (1996) and *In re Cal. Payphone Assn.*, 12 FCC Rcd. 14191 (1993).

The Commission itself recently recognized there is no significant interpretive confusion:

> Nor is there a clear conflict among the circuits on the standard for preemption under Section 253(a). The courts of appeals uniformly recognize that the FCC's California Payphone Order, 12 F.C.C.R. 14,191 (1997), prescribes the applicable standard for determining whether a legal requirement has the effect of prohibiting the ability to provide a telecommunications service. Although some circuits have interpreted the Commission's standard through the lens of Auburn's more-preemptive "may" standard—contrary to the approach of the Eighth and Ninth Circuits' decisions here—the conflict is not sufficiently settled or stark to warrant this Court's resolution at this time.
>
> ***
>
> The Eighth and Ninth Circuits' interpretation of Section 253(a) appears to be consistent with that of the FCC. In determining whether a state or local requirement has "the effect of prohibiting the ability" of an entity to provide telecommunications services, the Commission has looked to the "practical effect" of the requirement on the entity. Public Util. Comm'n of Tex., 13 F.C.C.R. 3460, 3470 ¶ 22 (1997) (Texas PUC Order). [footnote omitted]. The mere possibility that a state or local requirement might prevent a telecommunications carrier from providing service is not sufficient to violate Section 253(a).

[17] Comments of Qwest Communications International, Inc., GN Docket No. 09-51, at 28 (June 8, 2009); Comments of Blooston Rural Carriers NPB Public Notice #7, GN Docket No. 09-51, at 5-6 (Nov. 6, 2009); Comments of Sunesys, GN Docket No. 09-51, at 5-10 (Nov. 6, 2009).

Brief for the United States as *Amicus Curiae* at 9, 11, *Level 3 Communications v. City of St. Louis*, Nos. 08-626 and 08-759 (U.S. filed May 28, 2009).

Sunesys argues that the Ninth Circuit has "added to the confusion" because it determined that a plaintiff cannot succeed on a Section 253(a) claim unless it is completely barred from providing service. Comments of Sunesys, LLC NBP Public Notice #7, GN Docket No. 09-51, at 6 (Nov. 6, 2009). The decision referred to is *Time Warner Telecom of Oregon, LLC v. City of Portland*, 2009 WL 965816 (9th Cir. 2009), an unpublished opinion that had already been issued and of which the Commission and Solicitor General were aware at the time the amicus brief quoted above was submitted to the Supreme Court. Sunesys's argument is based on one sentence in the opinion, taken out of context. All the Ninth Circuit did was affirm a district court decision in *Time Warner Telecom of Oregon, LLC v. City of Portland*, 452 F. Supp. 2d 1084 (D. Or. 2006). In that case, the district court found, based on ample evidence, that Time Warner had failed to even show that challenged City requirements raised the *possibility* of a prohibition under the since-rejected "may prohibit" test announced in *City of Auburn v. Qwest Corp.*, 260 F.3d 1160 (9th Cir. 2001), *cert. denied*, 534 U.S. 1079 (2002), *overruled in Sprint Telephony PCS, L.P. v. County of San Diego*, 543 F.3d 571 (9th Cir. 2008). Having found Time Warner failed to meet even *Auburn's* overruled "may prohibit" standard, the court properly concluded that Time Warner had failed to show that it had been prohibited or effectively prohibited from providing any service under the stricter *California Payphone* standard. That is all the decision means, and that is why the Ninth Circuit was able to support its conclusion with a citation to the FCC's *California Payphone* standard. There is no indication that the Ninth Circuit, or any other circuit, is interpreting Section 253(a) inconsistently with *California Payphone*.

By contrast, such providers appear to ask the Commission to find prohibitions based on speculation. The Commission has not adopted that approach. Instead, as the Commission explained in *Cal. Payphone*, to show a prohibition of effective prohibition, it is not enough to show that a regulation imposes costs a provider would prefer to avoid; nor is it enough to show a provider would be enriched and arguably in a better position to provide service, without the requirement. 12 FCC Rcd. 14,191, 14,206 ¶ 31 (1997). Rather, it is necessary to show that the local government actions make provision of service "impractical and uneconomic." *Id.* at ¶ 41. A lesser standard would not be consistent with the plain meaning of the term "prohibit." *See, e.g.*, *AT&T v. Iowa Utils. Bd.*, 525 U.S. 366, 389-90 (1999) (finding the word "impair" in Sec. 252 requires more than a showing of an increase in costs).

#### *2. There is not substantial confusion regarding management of the rights-of-way.*

Nor is there confusion as to the interpretation of the right-of-way management provisions of Section 253(c). The courts have simply distinguished between regulations that relate to the management of the rights-of-way and those that relate to regulation of services. Thus, for example, in *TCG New York, Inc. v. City of White Plains*, 305 F.3d 67, 76 (2d Cir. 2002), the court drew a line between regulations "relevant only for regulating telecommunications" and those which may be relevant for "regulating use of the rights-of-way," striking the former and permitting the latter. And once it is determined that a regulation may be relevant to regulating the use of the rights-of-way, it is upheld, as it must be consistent with Section 253(c). There is no room for Commission intrusion in this area.

#### *3. The courts are recognizing, as they must, that compensation is not restricted to costs.*

While some district courts have come to differing conclusions as to whether the "compensation" provision of Section 253(c) restricts a locality to recovering costs, the courts of appeals that have actually addressed the issue have uniformly come to the conclusion that the "compensation" provisions of Section 253(c) do not limit a locality to recovering out-of-pocket costs,[18] and permit recovery of the value of the property. *See, e.g., Dearborn, supra; St. Louis, supra; Qwest Corp. v. City of Santa Fe*, 380 F.3d 1258, 1272 (10th Cir. 2004).[19] That result is compelled by the language of the Act, its legislative history, and Fifth Amendment concerns.

The common and ordinary meaning of "fair and reasonable compensation" does not connote mere reimbursement of costs. *Black's Law Dictionary* at 283 (6th ed. 1991), for instance, defines the term "compensation" to mean "payment of damages; making amends; making whole; giving an equivalent or substitute of equal value . . . . Consideration or price of a privilege purchased . . . giving back an equivalent in either money which is but the measure of value . . . recompense in value." And *Black's Law Dictionary* at 277 (7th ed. 1999), defines the terms "just compensation" and "adequate compensation" for use of property as "the property's fair market value."

[18] Generally, providers like Qwest have argued in courts that fees should be limited to incremental costs, such as the cost of processing a permit, and should not include an apportioned share of costs associated with the rights-of-way, or opportunity costs. Here, more obliquely, Qwest argues that compensation must be related to "management" costs. This is the same argument in a slightly different form.

[19] It is sometimes claimed that in *Puerto Rico Telephone Co. v. Municipality of Guayanilla*, 450 F.3d 9 (1st Cir. 2006), the First Circuit ruled that compensation for rights-of-way, while not *limited* to cost, had to be somehow related to cost. Textually, as explained in more detail above and *infra*, such a ruling could not be squared with the Act. Section 253(c) protects both *management* rights and *compensation* rights. Sen. Feinstein, in discussing *management* rights under Section 253, made it clear that those rights include the right to recover management costs. But that right is separate and apart from the right to compensation. Hence, when Qwest suggests that compensation must be somehow related to management costs, it is truncating the Act, as well as creating significant Fifth Amendment issues. No such result is contemplated by the First Circuit's *Guayanilla* discussion. The First Circuit's discussion is best understood in context: Guayanilla was seeking to charge both rents and cost-based fees. It failed to make any showing that its rents were reasonable (the First Circuit emphasized that there was no evidence anyone was willing to pay the rents), and thus its fees necessarily had to be justified based on costs – which the City failed to do. That does not mean that it makes any sense to require that rates must be based on costs in order to be reasonable. As the report of ECONW shows, it is widely recognized that there are any number of ways to establish a fair rental value. *Requiring* rates to be set on costs, by contrast, is likely to be cumbersome, and runs a serious risk of forcing localities to subsidize providers.

In common parlance, "fair and reasonable compensation," means more than mere cost recovery.[20] It is difficult to believe, for example, that if a municipal government were selling a parcel of land or a vehicle, or leasing office space in a municipal building, any "compensation" the municipality receives for that property would have to be limited to, or demonstrably related to, cost recovery, rather than fair market value. Likewise, we seriously doubt that industry commenters would contend that they are entitled only to cost recovery, rather than the prices they charge, as "fair and reasonable compensation" for the services they render.

Section 253(c) was enacted against a backdrop of abundant precedent establishing that the "compensation" to which municipalities have historically been entitled from private businesses, like telecommunications providers, that place permanent, extensive facilities in the right-of-way is the fair market value of the property. Fair market value rents have often been based on the franchisee's gross revenues. In the context of cable television franchise fees, for example, the Fifth Circuit held that the 5% franchise fee permitted by 47 U.S.C. § 542 is "essentially a form of rent: the price paid to rent use of rights-of-way." *City of Dallas v. FCC*, 118 F.3d 393, 397 (5th Cir. 1997). More generally, other courts across the nation, including the Supreme Court, have consistently reached the same conclusion for over one hundred years, in the

---

[20] Although the Second Circuit suggested that the "statutory language is not dispositive," that court also observed that "payment of rent as 'compensation' for the use of property does not strain the ordinary meanings of any of the words," "commercial rental agreements commonly use gross revenue fees as part of the price term," and "Congress's choice of the term 'compensation' may suggest that gross revenue fees are permissible" under § 253(c). *TCG New York v. City of White Plains*, 305 F.3d 67, 77 (2d Cir. 2002). Moreover, the only example that White Plains gave for "compensation" being synonymous with costs – "'compensatory' damages in tort are designed to precisely offset the costs . . . inflicted by the tort," *id.* – actually supports our reading of "compensation," since compensatory damages clearly can include lost profits. *See, e.g., Humetrix v. Gemplus*, 268 F.3d 910, 918-19 (9th Cir. 2001); *Silver Sage Partners v. City of Desert Hot Springs*, 251 F.3d 814, 821 & n.6 (9th Cir. 2001); *Yeti by Molly Ltd. v. Deckers Outdoor Corp.*, 259 F.3d 1101, 1107 (9th Cir. 2001).

context of both local telephone and local cable television franchises.[21] Indeed, the proposition that fees can be limited to costs is flatly inconsistent with the Supreme Court's *St. Louis* decision, 148 U.S. at 98, which emphasizes that "[n]o one would suppose that a franchise from the Federal government to a corporation, State or national, to construct interstate roads or lines of travel, transportation or communication, would authorize it to enter upon the private property of an individual, and appropriate it without compensation . . . And the principle is the same when, under the grant of a franchise from the national government, a corporation assumes to enter upon property of a public nature belonging to a State. It would not be claimed, for instance, that under a franchise from Congress to construct and operate an interstate railroad the grantee thereof could enter upon the state-house grounds of the State, and construct its depot there, *without paying the value of the property thus appropriated*."[22]

---

[21] *E.g., City of St. Louis v. Western Union Tel. Co.,* 148 U.S. 92, 98 (1893) (franchise fee is rent for use of local rights-of-way); *City of Plano v. Public Utilities Commission*, 953 S.W.2d 416, 420 (Tex. Civ. App. 1997) (gross receipts-based franchise fee is rent for use of local rights-of-way); *City of Albuquerque v. New Mexico Public Service Commission*, 115 N.M. 521, 854 P.2d 348, 360 (1993) (same); *City of Montrose v. Public Utility Commission*, 629 P.2d 619, 624 (Colo. 1981), *later proceeding*, 732 P.2d 1181 (Colo. 1987) (same); *City of Richmond v. Chesapeake & Potomac Tel. Co.,* 205 Va. 919, 140 S.E.2d 683, 687 (1965) (same); *Pacific Tel. & Tel. Co. v. City of Los Angeles*, 44 Cal.2d 272, 283, 282 P.2d 36, 43 (1955) (same); *Telesat Cablevision, Inc. v. City of Riviera Beach*, 773 F. Supp. 383, 407 (S.D. Fla. 1991) (same); *Group W Cable, Inc. v. City of Santa Cruz,* 669 F. Supp. 954, 962-63, 972-74 (N.D. Cal. 1987), *further proceedings* 679 F. Supp. 977, 979 (1988) (same); *Erie Telecommunications v. City of Erie,* 659 F. Supp. 580, 595 (W.D. Pa. 1987), *aff'd on other grounds*, 853 F.2d 1084 (3d Cir. 1988) (same).

[22] In both the public and private sectors, rent charges based on a percentage of the tenant's gross revenues have long been an accepted and widely used method of calculating rent because gross revenue-based rent provides a reliable measure of the economic value of the leased property. *White Plains*, 305 F.3d at 77; *see also* ECONW Report. For examples of gross receipts-based franchise fees, *see, e.g.,* cases cited in n. 20, *supra*. *See also* 12 *McQuillin Mun. Corp.* § 34.37 at 130 (3d ed. 1995). For examples of private commercial leases where rent is based on the tenant's gross receipts, *see, e.g., Scot Properties, Ltd. v. Wal-Mart Stores, Inc.,* 138 F.3d 571, 572 (5th Cir. 1998) (construing commercial retail lease where rent is based on a percentage of lessee's gross sales); *State of Texas v. Ralph Watson Oil Co.*, 738 S.W. 2d 25, 27 (Tex. Civ. App. 1987) (evidence of sales volume can be used as a factor in determining value of land upon which business sits); *In re Peaches Records and Tapes, Inc.,* 51 B.R. 583, 590 (Bankr. 9th Cir. 1985) (percentage of gross sales is one of the means adopted by the parties to measure the rental value

This, of course, does not mean that fees must be based on gross revenues. Charges for local property may vary depending on a wide variety of circumstances. The central point is that the Section 253(c) compensation provision must be interpreted in light of the plain meaning of "compensation" and the historical backdrop of gross revenue-based franchise fees as a permissible form of "compensation" for use of local rights-of-way. There is simply nothing in the language of Section 253(c) (or elsewhere in the Communications Act, for that matter) remotely suggesting that Congress intended for Section 253(c) to alter historical right-of-way compensation methods radically, to limit compensation to "management"costs, or to upset preexisting state laws authorizing (and in some cases, requiring) fair market rents for use of public property.[23]

In fact, the legislative history unequivocally confirms that Congress specifically intended Section 253(c) to give states and localities substantial latitude to set charges for use of public property, including based on gross revenues. The legislative history of the Barton-Stupak amendment in the House of Representatives is the key to understanding the meaning of "fair and

of the property). Likewise, a per foot charge for linear facilities is another means of charging a rents for use of public and private property. *See also* ECONW Report at Attachment A.

[23] If the FCC were to construe "fair and reasonable [right-of-way] compensation" as compelling state and local governments to accept anything less than fair market value for the right-of-way used by telecom/broadband providers, or as rejecting the principle that right-of-way compensation is to be treated rent for use of right-of-way, that would not only run counter to Sec. 253(c)'s language & legislative history, but would also preempt longstanding state constitutional and statutory provisions prohibiting both state legislatures and local governments from granting gifts of public money, property or anything of value to private persons or corporations. *See, e.g.*, Tex. Const. Art. III, §§ 51 & 52, & Art. XI, Sec. 3. Based on such state constitutional anti-gifting provisions, states have enacted statutes prohibiting local governments from permitting telephone companies from using local rights-of-way without paying compensation. *See, e.g.*, Tex. Civ. Code § 1175. And courts have construed the required compensation to be "rent" for use of the rights-of-way, permitting, for example, gross revenue-based franchise fees. *See, e.g.*, *Fleming v. Houston Light & Power*, 138 S.W. 2d 520, 522, *rehearing denied*, 143 S.W. 2d 923, 924 (Tex. 1940) (*citing St. Louis v. Western Union Tele. Co.*, 148 U.S. 92 (1893)).

reasonable compensation" in Section 253(c).[24] And if there is one conclusion on which both the proponents and the unsuccessful opponents of the Barton-Stupak amendment agreed, it was that gross revenue-based fees were a permissible form of "compensation" under what is now Section 253(c). The debate began with Rep. Barton, one of the amendment's sponsors, who made clear that one of the primary purposes of the amendment was to prevent just what industry urges here – having the federal government tell local governments how to set compensation for local rights-of-way:

> [The Barton-Stupak amendment] explicitly guarantees that cities and local governments have the right to not only control access within their city limits, but also to set the compensation level for the use of that right-of-way . . . . The Chairman's amendment has tried to address this problem. It goes part of the way, but not the entire way. The Federal Government has absolutely no business telling State and local government how to price access to their local right-of-way.[25]

Rep. Fields then rose in opposition to the amendment, complaining that it would allow municipalities to impose on telecommunications providers what he felt were excessive gross revenue-based fees in the range of "up to 11% percent." *Id.* at H8461 (remarks of Rep. Fields). The amendment's other sponsor, Rep. Stupak, replied, defending gross revenue-based fees:

> Mr. Chairman, we have heard a lot from the other side about gross revenues. You are right. The other side is trying to tell us what is best for our local units of government. Let local units of government decide this issue. Washington does not know everything. You have always said Washington should keep their nose out of it . . . . This is a local control amendment, supported by mayors, State legislatures, counties, Governors.[26]

Tellingly, some of those who unsuccessfully opposed the Barton-Stupak amendment also argued the amendment was unnecessary because the bill's language already permitted localities

---

[24] *See New Jersey Payphone v. Town of West New York*, 299 F.3d 235, 246-47 n.7 (3d Cir. 2002) (relying on the Barton-Stupak floor debate to interpret § 253(c)); *White Plains,* 305 F.3d at 80 (relying on Barton-Stupak amendment's elimination of "parity" provision to construe § 253(c)).

[25] 141 Cong. Rec. H8460 (daily ed. Aug. 4, 1995) (remarks of Rep. Barton) (emphasis added).

[26] *ld.* at H846l (remarks of Rep. Stupak).

to charge gross revenue-based fees, unrelated to out-of-pocket costs.[27] The House overwhelmingly adopted the Barton-Stupak amendment by a 338 to 86 vote. *Id*. at H8477.[28]

In short, the legislative history on "fair and reasonable" compensation is unusually clear. It was intended to provide localities flexibility in pricing, and to allow states and localities to charge rents, including rents based on gross revenues. And so the courts are now concluding. There is no reason for the FCC to use this proceeding to interpret Section 253, even if one assumes that it had authority to do so.

**C. In Any Case, Federal Intervention Is Neither Warranted Nor Advisable.**

Setting aside the legal limits on the Commission's authority, it is equally important for the Commission to recognize that any regulations it adopts that aim to regulate states and local governments will inevitably impose burdens on already-stressed local governments and taxpayers. A fundamental question, therefore, is whether there is any reason to suppose that the

---

[27] *Id*. (remarks of Rep. Bliley). It is worth emphasizing that even if the Commission could find that charges for use of the rights-of-way that are not based on costs are outside the ambit of Section 253(c) "fair and reasonable" safe harbor, neither the courts nor the Commission could preempt unless those fees are also "prohibitory." It is hard to imagine how charges could be deemed "prohibitory" within the meaning of Section 253(a) if they reflect fair market value. It is also hard to imagine, for example, how one could deem a gross revenues-based fee prohibitory, when one has been specifically in place under the Cable Act for three decades, and the industry has flourished. *See,* Attachment B, Book Report. And of course, the FCC would also have to explain why fair market value fees commonly charged to land users are suddenly prohibitory in the context of broadband.

[28] In enacting Section 253(c), Congress is of course presumed to be aware of previous interpretations of similar language. *Lorillard v. Pons,* 434 U.S. 575, 580-81 (1978). Precedent construing analogous terms supports construing "compensation" to permit recovery of more than costs. The Takings Clause of the Fifth Amendment, for instance, contains the very similar phrase "just compensation." And the law is clear that the "compensation" to which a person is entitled under the Takings Clause is not mere reimbursement of costs, but fair market value. *United States v. 50 Acres of Land*, 469 U.S. 24, 29 (1984). The law is equally clear that local governments, no less than private parties, are entitled to fair market value as "compensation" under the Takings Clause. *Id.* at 31 & n. 15.

relief requested by commenters – federal regulation of permitting and compensation – will actually result in measurable, additional broadband deployment.

The arguments of those who ask the FCC to regulate permitting and regulate compensation essentially boil down to this: if costs of entry are reduced, more broadband will be deployed. The argument rests on three assumptions: *first*, if such costs of entry are reduced, companies will respond by deploying more broadband, rather than increasing executive compensation or otherwise disposing of the excess profits; *second,* that permitting localities charge fair value for property, or to manage the rights-of-way deters deployment; and *third*, that the replacement federal regime will be more effective and efficient, and simpler to administer than the current regime – that is, the benefits will outweigh the costs. We address each assumption below.

#### ***1. It is Not Necessary To Give Away Local Public Property to Telecommunications Companies, Nor Is A Giveaway Likely To Result in Significant Additional Deployment.***

There is significant evidence that reducing costs alone – without clear and enforceable requirements for deployment – will not result in increased deployment. The attached report by Dr. Connie Book examines the effect of the change from local to state-level regulation on deployment. *See Attachment B.* Over the last six years, starting in roughly 2005, a number of states enacted laws that limited local franchising authority, in several cases restricting the fees that could be charged for use of rights-of-way, eliminating fees for public, educational and government access, and reducing the issuance of a franchise to a ministerial task that had to be completed within days of a request for a franchise. Yet this effort – which was designed in part to encourage deployment of competing systems by reducing the costs of entry – has had little positive effect, Dr. Book found. In North Carolina, local cable franchises were replaced with a state-issued cable franchise; fees for public, educational and governmental use were virtually eliminated; and localities may no longer require operators to construct institutional networks or to build out systems. Yet virtually no new additional deployment has occurred.

As Dr. Book notes, in the first state that adopted statewide regulation, Texas, independent researchers using zip code analysis and the 2000 census data found that new entry in Texas was only in wealthier neighborhoods with high home values and lower minority populations. These are obviously not the neighborhoods that suffer from the absence of broadband. Book and Meyers (2008) found roughly one year after the Texas legislation (SB5) went into effect, Verizon had launched FiOS in 13 communities in Texas. According to census data, households in these communities:

- Earned almost twice as much in annual income as the average Texan.
- Were 70% as likely to be White non-Hispanic.
- Had home values that are more than double that of the average Texas home.
- Had virtually non-existent poverty levels (500% lower than the State of Texas).
- Were twice as likely to have earned a college degree.

The Texas Public Utilities Commission, later confirmed, as Dr. Book notes, that "there are patterns of deployment of cable and video facilities by some companies in various areas in which rates of deployment of facilities positively correlate with household income or home value or negatively with the percentage of minorities in the area." (Book Report, Attachment B, at 2).[29]

[29] There is other evidence that merely flowing money to broadband providers does not result in significant broadband deployment. Several states adopted regulatory schemes that permitted telephone companies to obtain substantially increased revenues, in an effort to spur deployment. The promised deployment has not appeared, even where returns increased substantially. *See* New Networks Institute, "The History, Financial Commitments and Outcomes of Fiber Optic Broadband Deployment in America: 1990-2004, The Wiring of Homes, Businesses, Schools, Libraries, Hospitals and Government Agencies," GN Docket Nos. 09-47, 09-51, 09-137, DA 09-2458 (filed December 4, 2009). Dr. Mark Cooper has submitted reports to this Commission in response to this Notice which emphasize that a "trickle down" approach to broadband does not work.

A broadband policy that simply reduces costs, without specific, enforceable regulatory requirements that tie cost benefits to deployment results, is likely to exacerbate the digital divide, and likely to leave the United States far behind many countries in broadband deployment.[30]

### *2. Leaving local governments free to charge fair market value for use of the right- of-way, and to manage the use of the rights-of-way, does not discourage deployment – it encourages deployment.*

In theory, providers *could* deploy more broadband if any of their input costs were reduced – e.g., if charges for electric utility poles attachments were limited to the cost of processing the pole application; or if charges for the use of railroad rights-of-way were limited to the out-of-pocket costs of issuing a permit; or if broadband providers were given free access to any private property they need; or if the federal government returned the fees obtained from wireless spectrum auctions.

But this approach – which ultimately, in the case of rights-of-way charges, would require taxpayers to subsidize telecommunications providers by charging less than fair market value for the rights-of-way – has proven ineffective in experience. And it is inconsistent with sound economics on which the National Broadband Plan must be based. It is good economics to require any producer of a competitive product to pay fair market value for all the inputs of production. This includes the fair market value for the use of public resources The ECONW Report explains why it is economically efficient (and pro-competitive) for the City to charge a market-based price for use of its rights-of-way. As he put it:

---

[30] This is hardly surprising as there is no evidence that fees for use of rights-of-way or permitting practices are a significant factor in broadband deployment. A September 29, 2009 powerpoint presentation by Commission staff and reports on rural broadband strategy are often cited to show that charges for rights-of-way may have a significant impact on fiber deployment. Comments of Sunesys, GN Docket No. 09-51, at 3-4 (Nov. 6, 2009). Comments of USTA, GN Docket No. 09-51, at 4-5 (Sept. 24, 2009). But the slide and the reports at most posit that total costs, including utility pole make-ready costs, "may" be a barrier to broadband deployment; the basis for that conclusion is itself unclear.

> Charging a fee to access the City's ROW ensures efficient use of the ROW. The closer the fee approximates the relevant market price, the more likely the ROW will be used in an economically efficient manner, which is a fundamental criterion by which economists evaluate the performance of a market and overall social welfare.

ECONW Report, Att. A, at 2. In other words, contrary to the suggestion of industry commenters, allowing a fair market value charge *encourages* efficient deployment.

This is consistent with the FCC's own experience auctioning of spectrum, where the auctions led, or certainly did not deter, rapid cell phone deployment. In the case of the Commission auctions, the Commission carefully constructed the auctions to extract every penny of the full value of the spectrum. *In re FCC Report to Congress on Spectrum Auctions*, 1997 WL 629251, WT Docket No. 97-150, FCC 97-353 (1997) ("By requiring firms to use their own resources to compete for valuable spectrum, auctions encourage firms who value the spectrum the most to use it productively and in innovative ways."). It is consistent with other analyses. The City of Portland charges a rental fee to all entities that occupy the rights-of-way, including cable companies, telecommunications service providers, and information service providers. Economist Alan Pearce, Ph.D., analyzed the City of Portland's telecommunications market against the markets in various other similarly situated cities, including Charlotte, NC; Cleveland, OH; Denver, CO; and Kansas City, MO. Portland charged providers for the use of its rights-of-way, and required carriers to make "in-kind" contributions. Many of the other cities that Dr. Pearce analyzed did not impose any such right-of-way compensation requirements. Yet Dr. Pearce found: "An examination of the relative numbers of competitive telecommunications service providers in the comparable cities clearly demonstrates that the city of Portland has a relatively large number of competitive providers. . . . ." Expert Report of Alan Pearce, Ph.D., *Time Warner Telecom of Oregon, LLC v. City of Portland*, CV 04-1393 (D. Or. 2005).

By contrast – and as experience suggests – reducing the costs of entry below market value will not encourage deployment of broadband to underserved areas. For example, requiring New York City to charge a rate unrelated to the value of property in New York is a policy that is likely – if it does anything – to divert deployment dollars to New York, and ensure that they are not invested in rural America.

As importantly, in this case the Commission must recognize that government itself is a critical provider of broadband services and facilities, and in many cases is providing facilities and services that other providers will not provide, or will not provide at an affordable price. The comments cited at n.4, provide examples of critical local government broadband initiatives. If the Commission diverts resources from local governments to private providers, by requiring localities to transfer property at less than fair market value, it is actually transferring wealth from one set of broadband providers to another. The stress on local budgets is described below, and the impact of that transfer on localities would be enormous. That transfer may leave local governments without the resources to expand or even maintain those broadband efforts – without any guarantee that they will be replaced. The effect is then of the federal regulatory scheme some commenters envision will be far less broadband, and broadband that is less available or affordable.

***3. Federal intrusion could have significant, negative effects.***

Aside from the critical effects on broadband deployment described above, a federal regime is likely to impose significant costs on both providers and on state and local governments without any comparable benefit. The arguments by Qwest and others – that to be reasonable, a fee must be related somehow to management costs – envision a national, cost-based rate regulation regime of the costs of state and local rights-of-way of precisely the sort that Congress intended Section 253(c) to avoid.

The Commission has plenty of experience with cost-based regulation – it used to set rates for interstate telecommunications services that way. And it should well understand that the process is anything but simple and smooth. To adopt a regulatory scheme under which local governments are the object of regulation administered by the FCC in order to lead to uniform results would also not be simple or smooth. The attached study by Garth Ashpaugh explains that it is extremely complex to identify right-of-way related costs and to allocate those costs to the various right-of-way users. As Mr. Ashpaugh further explains, if the Commission required that each provider bear the costs associated with its unique route (which cost would increase with every extension), an individual study, costing potentially thousands of dollars, would have to be performed for each provider. If the Commission allowed cost averaging, the problem may be mitigated somewhat, but costs change over time, and new studies would have to be regularly funded. The current approach – through which many communities charge a fee on a per foot basis or a percentage of gross revenues – is both cheaper to administer and avoids the inefficiencies and delays of cost studies.

### D. Intruding on State and Local Right-of-Way Compensation and Right-of-Way Management Authority Will Cost Jobs and Create Lost Opportunities in Broadband.

Earlier sections of these comments have pointed out that the legal restrictions against federal intrusion upon state and local right-of-way compensation (FCC has no authority); demonstrated that a trickle-down approach will not increase deployment; demonstrated that local right-of-way compensation and management is not hindering broadband deployment; and that a Commission-managed right-of-way regulatory regime is likely to make matters worse, not better, without resulting in a single, measurable additional foot of broadband deployment.

In this section, we depart from the narrow world of broadband and consider the overall economic effect of adopting a policy of regulating states and local governments – particularly where there is no evidence that state and local governments are actually creating significant barriers to entry. If the Commission issues pronouncements as to what proper right-of-way compensation should be, or what management policies are reasonable, the effect will be predictable: providers will promptly stop paying anything the Commission has not authorized, and will stop doing anything the Commission has not endorsed. This is not supposition: it has happened in the past:

- Immediately after the FCC declared that cable operators were entitled to deduct the amount paid in franchise fees from gross revenues, cable operators started taking that deduction.

- The same thing happened when the FCC declared that cable modem revenues were not cable service revenues.

- Similarly, telecommunications providers responded to the Ninth Circuit's decision in *Auburn* by refusing to pay any fee owed that was not cost-based, even though *Auburn* did not even address the question as to whether compensation under Section 253(c) had to be cost-based.

- After the Commission issued its Section 621 franchising order, Time Warner unilaterally withheld close to $5 million in PEG fees it owed the City of Los Angeles, on the ground that the fees violated the Order –although the Order itself specifically indicated it was not intended to permit operators to unilaterally withhold fees. *In re Implementation of Section 621(a)(1) of the Cable Television Protection and Competition Act of 1992*, 22 FCC Rcd. 19633, 19642 ¶ 19 (2007).

Hence, a Commission statement as to what fees can be collected, or what management practices are permitted – unless the statement unequivocally endorses the local reservation of authority intended under Section 253 – could have significant, immediate economic consequences on local governments, and on the economy as a whole, setting aside the legal and regulatory costs associated with such a regime.[31]

---

[31] Note that the impact does not depend on whether the formula for compensation adopted by the Commission, if properly applied, would yield more or less money than the compensation formula used by a locality now. It is possible that a cost-based rate that took into account all relevant costs would result in *higher* charges, *see* ECONW Report; Ashpaugh Report. But that would occur, years from now, after all studies had been performed, and after all issues of cost

Today, there is widespread recognition and discussion (outside of these proceedings at least) of State and local government budget pressures and the ongoing efforts being made to close growing budget gaps through a combination of job cuts and furloughs, and increases in user fees and taxes.[32] A December 2009 article in *Newsweek* titled "The Next Big Crisis: How the forthcoming state and local budget crises could slow down the American economy" cites this ongoing weakness in state and local budgets as a major threat to the entire nascent economic recovery. This is in part because the money spent by local governments translates directly into employment in the public and the private sector. Every $1 cut from the local government budget translates into an additional 88 cents of lost activity for the private sector.[33]

Recent news illustrates the severity of the cuts governments are already facing. Washington State just reported a jump in its unemployment rate to 9.5 percent, having lost 23,700 jobs in December 2009, which included a loss of 1500 government jobs, *1400 of which were in local government*.[34] In an effort to save jobs and services, Multnomah County (where the City of Portland is located) struck a deal with unions to preserve 100 jobs by freezing

---

determination and allocation had been resolved; after states and localities had rewritten their laws; and after taxpayers had absorbed all the costs of going through that process. In the meantime, however, local revenue streams would be disrupted with disastrous effects on budgets and broadband.

[32] For some recent national coverage *see*: Conor Dougherty, "As Slump Hits Home, Cities Downsize Their Ambitions," Wall Street Journal, December 26, 2009, p. A-1; David A. Graham, "The Next Big Crisis: How the forthcoming state and local budget crises could slow down the American economy" Newsweek Web Exclusive, December 28, 2009 (http://www.newsweek.com/id/228468); Jennifer Steinhauer, "Despite Ray Bradbury's Efforts, a California Library Closes" New York Times, December 9, 2009, p. A28.

[33] *See* Graham, *supra*.

[34] Associated Press Online, "Washington Jobless Rate Jumps to 9.5 Percent" New York Times, January 20, 2010 (http://www.nytimes.com/aponline/2010/01/20/business/AP-US-Wash-Jobless.html)

wages.[35] Due to anticipated drops in revenues from most revenue sources, the City of Portland cut ongoing general fund expenditures by $8.9 million (approximately 2.7 percent) in order to present a balanced budget for FY 2009-2010. The 2009-10 budget projects a decrease of 225 full and part-time positions from the prior fiscal year.

In this environment, a federal trickle-down regulatory policy – which is ultimately what is being proposed by many commenters -- will cause positive harm. In fiscal year 2008-09, the City of Portland generated right-of-way revenues (fees and utility taxes) from cable and telecommunications providers totaling approximately $12.2 million (Cable: $5.5 million; Telecom: $6.7 million). If those revenues are placed at risk, or are withheld, that would translate directly into significant service and employment cuts (approximately 139 police and firefighters, for example) on top of already significant cost cutting measures being taken due to the recession.[36] That impact would multiply through the Portland economy.

Portland is not unique. Other localities around the country have similar reliance on revenues from cable and telecom companies who use their rights-of-way. In 2009, telephone revenues alone for Seattle were $32 million – equivalent to about 300 public sector jobs. The City of Dallas, Texas, receives approximately $6 million per year in cable franchise fees and approximately $31 million from telecommunications companies, based on access line fees. This is about 3.6% of the budget for this fiscal year, and – applying the test for job creation used in assessing the impact of the federal stimulus package – if lost would translate to a loss of more than 300 jobs in the City of Dallas alone (again ignoring the ripple effect through the economy).

---

[35] Graham, i*d.*

[36] The problem becomes even more severe if the Commission's action is taken to establish a general principle that public property should be provided to utilities at cost. That would endanger millions of other dollars and hundreds of jobs funded through franchise fees on electric utilities, gas pipelines, and other private users of public resources.

Similarly, the City of Arlington, Texas, receives approximately $2.1 million per year in cable franchise fees and approximately $6.7 million from telecommunications companies, based on access line fees. These fees accounted for approximately 4.6% of the City's FY 2009 Budget, and if lost would translate to dozens of lost jobs and a ripple effect on the local economy. It is worth emphasizing that the Texas fees on telecommunications service providers are imposed on a per line basis, pursuant to a state law that was adopted in conjunction with providers. It is not a cost-based model. So, were the Commission, for example, to decide that only fees based on costs were reasonable, it would have essentially forced these employment cuts in city after city through one of the largest states in the country.

And that impact could be replicated in community after community across the nation. All this would occur without any indication that the fees that are being charged now are actually prohibiting entry in any meaningful respect, and in direct derogation of Congress's will.

The industry's demand for federal relief from what are claimed to be excessive regulations and fees is not new. In its 2006 response to the industry call for the elimination of "excess taxes," the local governments determined that, if industry proposals were implemented in 2006, it would have amounted to a projected $8 billion decrease in annual state and local revenues from telecommunications companies, which would be equal to the combined salaries of more than 150,000 teachers, police, and firefighters.[37] Nationally then, what the industry is demanding from the FCC is far from inconsequential for the economy as a whole, and would have reverberating negative effects on local communities and economies across the nation. It risks further prolonging the recession.

---

[37] *Local Government Perspective On Telecommunications Taxes: A Response to Industry's 2004 COST Study*, Summer 2006, at 10, available at: www.gfoa.org/downloads/TelccomTaxBriefing_FullReport.pdf..

That should be enough, but it also bears emphasizing that budget cuts will also have an effect on the ability of local governments, schools and non-profit groups to spur broadband deployment and use of advanced communications technologies.  Budget cuts are already endangering the ability of local governments to leverage assets and help spur universally available, low-cost broadband deployment.   Public access centers, which provide an important antidote to national media concentration, are losing funding in the face of cuts in support caused by reductions in franchise fees and fees to support public educational and governmental access. For example, the City of Wausau, Wisconsin, may have to close its public access television station if it is not paid the more than $170,000 in PEG fees owed to it by Charter which has not paid since 2007.[38]  These problems would only be exacerbated if the Commission decides that local governments should subsidize other broadband providers by providing access to resources for "management costs."

This potentially devastating economic disruption is advocated by industry without any *quid pro quo* – no guarantee that a single dollar taken from local governments and taxpayers would be spent in areas where broadband is required, or that there would be enforceable conditions that would protect consumers.    The Commission's National Broadband Plan should, if anything, affirm basic regulatory principles:

- utilities should pay fair value for public resources used;
- where subsidies are required, they should be provided explicitly, and in return for enforceable promises to perform; and
- there are important roles for state and local governments to play in encouraging broadband, as participants in the marketplace, as managers of public resources, and as regulators.

[38] Bryan Graff, "The Future of Wausau Public TV" WAOW News Line 9, January 21, 2010 (http://www.waow.com/Global/story.asp?S=11862748)

Broadband deployment is important. But so too are the essential services localities provide their citizens, funded in important measure with revenues generated from the users of local rights-of-way. Now is not the time to make knee-jerk policy prescriptions -- based on flawed industry arguments -- that can have far reaching consequences for citizens, local governments, and the broader economy.

## II. IF THE COMMISSION ESTABLISHES PARTNERSHIPS TO WORK WITH AND ENCOURAGE LOCAL GOVERNMENT INVOLVEMENT IN BROADBAND, LOCAL GOVERNMENT CAN HELP BROADBAND DEPLOYMENT.

The Commission can encourage broadband deployment without establishing national compensation or permitting standards if it is willing to recognize local interests in the rights-of-way and public property, and will work with local governments and empower them to assist in the deployment of broadband. To this end, in addition to mechanisms that local governments have proposed previously, it is worth emphasizing three elements that could be included in a National Broadband Plan.

### A. The Commission Can Help Convene Forums for Sharing and Developing Best Practices in Rights-of-way Management to Facilitate Broadband Deployment.

Many local governments have devoted significant efforts to streamlining permitting processes inside and outside of the rights-of-way. Some efforts have also been undertaken at the federal level among federal agencies led by NTIA.[39] That process can be further advanced – and the Commission's own understanding of the permitting process enhanced – if the Commission establishes a mechanism (and perhaps funding) for state and local governments to collect and

[39] See NTIA website re Federal Rights-of-Way For Telecommunications Projects (http://www.ntia.doc.gov/FROWsite/index.html)

share, among themselves and with the Commission, "best practices" that appropriately balance the interests of the public and the permittees.

The Commission previously had such a mechanism in the form of the Local and State Government Advisory Committee, created in 1997. The Commission terminated the LSGAC and established its successor, the Intergovernmental Advisory Committee, with a different makeup of expertise and redefined mission. The Commission should consider creating a special task force of federal, state and local government experts on rights-of-way which could catalog federal, state, and local right-of-way practices and fees in an effort to identify and articulate existing best practices being employed by federal, state, and local authorities for different categories of public right-of-way and infrastructure. This could include right-of-way construction and maintenance practices that:

a. preserve and enhance the long term reliability and utility of rights-of-way;

b. reduce the overall maintenance and capital costs of property for federal, state and local governments and for users;

c. minimize disruption and externalized costs among right-of-way users; and

d. avoid unnecessary and repetitive delays, actions, costs, and inefficiencies related to telecommunications facility construction and maintenance in the PROW; and

The task force could also examine and report to the Commission regarding the advantages and disadvantages of alternative forms of compensation for use of public rights-of-way, and other right-of-way related infrastructure, such as poles and conduits. The end result of the task force's work would not be a federal directive as to how the rights-of-way or other property must be managed or priced. Rather, the task force could:

- Identify best practices that are consistent with the goals and purposes of the National Broadband Plan as well as overall economic development.[40] These may

[40] The report could also alert the Commission to federal and state laws that reduce local latitude to adopt particular forms of compensation.

include recommended and broadly applicable forms, applications and inspection protocols; and mechanisms for efficiently and quickly resolving industry questions and suggestions.

- Propose an on-going outreach and education of both industry and government officials to encourage understanding and adoption of the recommendations.

- Recommend a means to permanently institutionalize the process of modifying and updating the best practices in light of new engineering and technological advances.

The goal would not be to establish a forum for debate among the providers and other users of the rights-of-way, but to encourage public officials primarily responsible for actually managing the rights-of-way to share information . The task force would include, first and foremost, representatives from local government; representatives from the FCC and the NTIA; representatives from federal agencies responsible for leasing and managing federal property; and representatives of state government responsible for managing state property. The Commission's role would be to facilitate the work of the task force – providing necessary support so that it may function.

### B. The Commission Can Encourage Broadband by Encouraging Localities To Leverage Their Resources.

Many local governments and other governmental and quasi-governmental agencies own facilities that can be used for broadband, and many are also consumers of a variety of broadband and telecommunications services. If local governments are able to consolidate purchasing power, such as by agreeing to take services as an anchor tenant in return for enforceable deployment promises; sharing and swapping facilities; and granting contractual rights in return for in-kind benefits that expand the broadband facilities in a community, deployment could explode and competition could actually increase.

NATOA has already submitted information on ways in which local governments have leveraged assets to increase broadband deployment. Comments of NATOA, *et al.*, GN Docket

No. 09-51, NBP Pub. Notice #7, at 11-34 (Nov. 6, 2009). However, a key to encouraging deployment is to ensure that it is not conditioned in a manner that effectively prevents local governments from entering the market, or developing innovative solutions. Some states have prohibited or severely limited local participation in the market, while others have created burdens that essentially give the private sector a veto over deployment. In Pennsylvania, for example, localities must seek a private alternative before a public alternative can be developed. Other states claim to be creating a so-called "level playing field" but do so through counter-productive rules that prevent local governments from using their own assets to serve themselves, or other agencies, unless certain conditions are satisfied. These state requirements don't level the playing field: they don't impose comparable restrictions on private providers in the use of their property or prior to beginning a new project. Such limitations can preclude and have precluded innovative broadband deployment. In addition, several providers have attempted to use Section 253 to prevent local governments from using their own assets to compete, further dampening local government efforts at broadband deployment.[41]

Government entry into the market can actually encourage competition. In Portland, for example, the City provided a connection from various agencies to a "meet me" point where there were connections to various Internet service and telecommunications service providers. The effect was to break a "middle mile" bottleneck controlled by Qwest and to open the market to

[41] *Time Warner Telecom, supra.* In the Portland case, for example, Qwest suggested that it was unfair for Portland to use franchise fee revenues to support construction of Portland's municipally-owned network, IRNE. But of course, Qwest uses revenues it obtains from CLECs use of its property to compete, and no one suggests that is unfair. Qwest separately argued that it was unfair under Section 253 for Portland to provide communications services to Portland schools via an institutional network provided by Comcast under the Communications Act; but holding that the City could not use an institutional network to provide services would prevent the City from using one of the central benefits accorded municipalities by the Cable Act. Indeed, the deployment of institutional networks has been critical in many cities to making Internet services available in schools and libraries.

competition and improved services.  That sort of active government involvement should be encouraged, and discouraged.

In addition, in furtherance of obligations under the American Reinvestment and Recovery Act, the second Notice of Funding Availability recently released by NTIA and RUS demonstrates a recognition of the benefits to broadband deployment from extensions and upgrades of governmental middle mile networks, coupled with open access to those networks by service providers.  It would be ironic indeed if the Commission's National Broadband Plan failed to recognize and build upon the progressive steps taken by these federal agencies to promote local government creativity and leveraging of assets – of if, even worse, it undercut the NTIA and RUS by issuing decisions that had the effect of cutting revenues to local governments.

### C. The Commission Can Encourage Localities To Support Implementation of Federal Goals.

NCTA has broadly urged the Commission to preempt local conditions on use of rights-of-way to provide broadband services.[42]  But  nothing in federal law prevents localities from charging broadband providers fees for use of rights-of-way, or appropriate conditions on right-of-way user consistent with state and local law.  *See e.g. In re Implementation of Section 621(a)(1) of the Cable Television Consumer Protection and Competition Act of 1992,* Second Report and Order, 22 FCC Rcd. 19633 at ¶ 11  (2007) (nothing in Cable Act prevents locality from imposing otherwise lawful fees on users of rights-of-way)

The Communications Act has traditionally recognized that the local property rights are not eliminated and cannot be ignored merely because there is a federal interest in deployment of modern communications systems.   Indeed, federal law has traditionally protected and those interests and carved out "dual regulatory regimes" where those interests intersect, allowing state

---

[42] Comments of NCTA, GN Docket No. 09-51 (June 8, 2009).

and local property and community interests to control in some cases, and federal policies in others. But the NCTA request is disingenuous as the association complains about local regulation interfering with federal policies, at the same time it contends the FCC is without authority to engage in basic regulation of broadband deployment under Title I. NCTA's position essentially seeks to enlist the Commission's support to require all levels of government to ignore the public interest in the future of the Internet. There is a better choice: without settling the issue finally, the Commission could actually promote its broadband policies by stating that, in addition to exercising long-recognized authority over property, local governments are free to pursue local policies subsidizing or contracting with providers to encourage deployment and subscription to services under conditions consistent with the Commission's broadband policies (including those designed to protect consumers and users from abuse by the owner of the facility). This is not a startling step. As AT&T's recent comments in this matter suggest,[43] traditionally, access to the rights of way has been conditioned on providers accepting certain

---

[43] On December 21, 2009 AT&T filed comments in this docket on the transition from the legacy switched network to broadband, AT&T, Comments – NBP Public Notice #25, "Comments of AT&T Inc. on the Transition from the Legacy Circuit-Switched Network to Broadband." AT&T is correct that the telecommunications universe is not the same as it was in 1920 and 1930s, when, in return for agreeing to price, service, interconnection, and deployment obligations, carriers were granted certificates and provided access to right-of-way. It may be sensible to revisit those issues – albeit in a different proceeding. The dominant providers have accepted special privileges (in some cases including reduced costs of right-of-way and the rights of eminent domain) in the expectation they would address serious social obligations (non-discriminatory, universal service at reasonable rates). Now is not the time to relieve them of those obligations and leave them with the privileges, such as legacy rights to use right-of-way at no charge or reduced charges. To the extent that the burdens are changing, the Commission should also recognize that it is not consistent to maintain the benefits either – and that a new social contract will need to be created.

social responsibilities – including responsibilities akin to those established by the Commission in its network neutrality rules. Preserving the social contract is still important today, and critical to real and universal broadband deployment.

Respectfully submitted,

Nicholas P. Miller
Joseph Van Eaton
Matthew K. Schettenhelm
Gail A. Karish
Miller & Van Eaton, P.L.L.C.
1155 Connecticut Avenue, N.W., Suite 1000
Washington, DC 20036-4306
(202) 785-0600

Counsel for National Association of Telecommunications Officers and Advisors ("NATOA"); Texas Coalition of Cities for Utility Issues ("TCCFUI"); Montgomery County, Maryland; City of Charlotte, North Carolina; City of Dubuque, Iowa; Town of Palm Beach, Florida; City of Houston, Texas; Anne Arundel County, Maryland; City of Los Angeles, California; Prince George's County, Maryland; City of Boston, Massachusetts; City of Seattle, Washington; City of Dallas, Texas; and City of Portland, Oregon

January 27, 2010

## CERTIFICATION PURSUANT TO 47 C.F.R. § 76.6(a)(4)

The below-signed signatory has read the foregoing Comments, and, to the best of my knowledge, information and belief formed after reasonable inquiry, it is well grounded in fact and is warranted by existing law or a good faith argument for the extension, modification or reversal of existing law; and it is not interposed for any improper purpose.

Respectfully submitted,

January 27, 2010

Joseph Van Eaton

9030\01\00151942.DOC

Attachment A

# Economic Principles of Charging Fees to Access Government Trust Properties

Prepared for
Miller & Van Eaton, P.L.L.C.


By

W. Ed Whitelaw
Bryce Ward

**ECONorthwest**
99 W. Tenth, Suite 400
Eugene, OR 97401
(541) 687-0051


January 27, 2010

# I. AUTHORS

### W. Ed Whitelaw

Ed Whitelaw is a professor emeritus of economics at the University of Oregon. He is also founder and chairman of ECONorthwest ("ECONW"), which provides analysis in economics, finance, planning, and policy evaluation for businesses and governments. He received a Ph.D. in economics from the Massachusetts Institute of Technology. He has testified on economic matters in administrative, legislative and Congressional hearings, and in courts. Exhibit A, contains a copy of his vita.

### Bryce Ward

Bryce Ward is a senior economist at ECONW. He also has served as a Visiting Assistant Professor at the University of Oregon and Lewis and Clark College, where he taught microeconomic theory, econometrics, public economics, labor economics, and environmental economics. He has testified on economic matters in administrative, legislative, and court proceedings, and presented papers at professional proceedings on economics. He received a Ph.D. in economics from Harvard University. Exhibit B, contains a copy of his vita.

# II. PURPOSE

In this report, we address some of the economic principals of charging telecommunication and other firms market-rate fees to access government-owned or managed property, including rights-of-way (ROW), park lands, and other properties.[1]

# III. SUMMARY OF OUR OPINIONS

Based on our training and experience studying fees to access municipal ROWs, we proffer these opinions:

- Charging a fee to access a City's ROW ensures efficient use of the ROW. The closer the fee approximates the relevant market price, the more likely the ROW will be used in an economically efficient manner, which is a fundamental criterion by which economists evaluate the performance of a market and overall social welfare.

- Limiting fees to out-of-pocket operations and maintenance (O&M) costs, or requiring that fees be set at less than the relevant market price would distort—artificially increase—the demand for ROW access, subsidize private ROW users, and increase costs to

[1] Throughout this report we refer to government-owned ROWs. Similar economic principals apply to other government-owned or managed properties, although there may be important physical or legal differences between these properties and street ROWs. For example, accessing environmentally sensitive areas or park lands involve different considerations than accessing street ROWs. These considerations include whether the property is appropriate for use by third parties, and could also affect the market price for access in ways that we have not described in detail in the analysis below.

municipalities, their citizens and businesses. Expressed on a cost basis, a market-rate ROW fee should compensate a municipality at a minimum for the fixed costs it incurred establishing and developing the ROW, the opportunity costs of occupying space in the ROW, the costs of managing the municipality-wide ROW, the daily or periodic operations and maintenance costs (O&M), and related administrative costs.

- Valuing ROW using comparable (or more accurate, similar) transactions is common practice that helps establish a market value for ROW.

- A fee based on per-linear foot of installed conduit or on a percentage of gross revenue are commonly used and accepted methods of charging telecom and other services providers for the space their services occupy in municipal ROW.

- We have not seen examples of local governments charging inefficient or inequitable ROW fees. Likewise, we have not seen cases in which a municipality's ROW fees limited the availability or adoption of telecommunication services. Municipalities manage property not to maximize profits or fiscal surpluses but hold the ROW in trust for citizens and local businesses. These trust responsibilities include promoting economic development. A municipality's pricing of ROW access is disciplined by obligations under its trusteeship on behalf of its citizens.

# IV. FAIR AND REASONABLE ROW FEES

In this section we describe economic concepts regarding compensation for use of public property, including public ROWs, and competition.

## A. COMPENSATION FOR USE OF PUBLIC RESOURCES

Allowing state and local governments to charge market value for use of public ROW and other public property is consistent with the economic principle of using prices to allocate scarce resources. From an economic perspective, a city's ROW is a scarce resource just as lands—public or private—outside a ROW are scarce. In contrast to "free resources," scarce resources do not "exist in such large quantities that they need not be rationed among those wishing to use them."[2]

Economic scarcity, though, encompasses more than a constraint on physical capacity. A resource can be scarce in an economic sense even if it can

---

[2] Samuelson, Paul A. and William D. Nordhaus. 2001. *Economics*, 17th Edition. New York: McGraw-Hill. Page 765. For other authors expressing the same concept, see Hall, Robert E. and Marc Lieberman. 1998. *Microeconomics: Principles and Applications*. Cincinnati, OH: South-Western College Publishing. Page 483; O'Sullivan, Arthur and Steven M. Sheffrin. 2001. *Microeconomics: Principles and Tools*, 2nd Edition. Upper Saddle River, N.J.: Prentice Hall. Page 2: Parkin, Michael. 1998. *Microeconomics*, 4th Edition. Reading, MA: Addison-Wesley. Page 42; Tregarthen, Timothy and Libby Rittenberg. 2000. *Microeconomics*, 2nd Edition. New York: Worth Publishers. Pages 3-4.

accommodate all users at a given moment in an engineering sense. For example, if the use of a resource by one party imposes costs on other parties, then it is scarce in an economic sense. This conclusion holds whether the affected party is a city, another user of the ROW (a utility, a commuter, a truck driver, or anyone else) or a resident (a home owner whose property is affected by utility facilities in or under the street).

It is because a city's ROW is scarce that charging for its use makes good economic sense. Economic texts describe a relationship between economic scarcity and economic cost, or opportunity cost:

> "Just as scarcity implies the need for choice, so choice implies the existence of cost. ... A decision to have more of one thing requires a decision to have less of something else. It is this fact that makes the first decision costly."[3]

> "It [opportunity cost] concerns the true economic costs or consequence of making decisions in a world where goods are scarce."[4]

The history of cities throughout the world offers compelling illustrations of economic scarcity, opportunity costs, and efficiency in the development of ROW.[5] Examples of cities in which we have observed such scarcity and opportunity costs first hand include New York, Chicago, San Francisco, Portland (Oregon), Tucson, Huntsville, New Orleans, and Seattle. This nearly universal pattern of municipal management of ROW has not arisen by chance or whim. It reflects real and substantial economic forces that create the so-

---

[3] Lipsey, R., et al. 1990. *Microeconomics*, 9th Edition. New York: Harper & Row. Page 4. For other authors expressing the same concept, see Nicholson, Walter. 2000. *Intermediate Microeconomics*, 8th Edition. Fort Worth, TX: The Dryden Press. Page 17; O'Sullivan, Arthur and Steven M. Sheffrin. 2001. Cited previously. Page 24; Parkin, Michael. 1993. *Macroeconomics*, 2nd Edition. Reading, MA; Addison-Wesley, Page 10; Tregarthen, Timothy and Libby Rittenberg. 2000. Cited previously. Page 5

[4] Samuelson, Paul A. and William D. Nordhaus. 1992. *Economics*, 14th Edition. New York: McGraw-Hill. Page 131. For other authors expressing the same concept, see Hall, Robert E. and Marc Lieberman. 1998. Cited previously. Page 18; McConnell, Campbell R. and Stanley L. Brue. 1996. *Economics*, 13th Edition. New York: McGraw-Hill, Inc. Page 26; Parkin, Michael. 1998. Cited previously. Page 42; Tregarthen, Timothy and Libby Rittenberg. 2000. Cited previously. Page 5.

[5] For various historical descriptions of the development of streets and rights of way, see Abbott, Carl. 1983. *Portland: Planning, Politics, and Growth in a Twentieth-Century City*. Lincoln, NE: University of Nebraska Press; Baldwin, Peter C. 1999. *Domesticating the Street: The Reform of Public Space in Hartford, 1850-1930*. Columbus, OH: Ohio State University Press. Pages 201-203, 207-208; Barrett, Paul. 1983. *The Automobile and Urban Transit: The Formation of Public Policy in Chicago, 1900-1930*. Philadelphia, PA: Temple University Press. Pages 13-14, 49-50; Bridenbaugh, Carl. 1938. *Cities in the Wilderness: The First Century of Urban Life in America 1625-1742*. New York: Alfred A Knopf. Pages 153-154, 159, 317; Hood, Clifton. 1993. *722 Miles: The Building of the Subways and How They Transformed New York*. New York: Simon & Schuster. Page 84; Pierce, Bessie Louise. 1937. *A History of Chicago: Volume I*. New York: University of Chicago Press. Pages 96, 336: Pierce, Bessie Louise. 1937. *A History of Chicago: Volume II*. New York: University of Chicago Press. Page 325; Quaife, Milo M. 1923. *Chicago's Highways Old and New: From Indian Trail to Motor Road*. Chicago, IL: D.F. Keller & Co. Pages 53-54, 60: Thwing, Anne Haven. 1920. *The Crooked and Narrow Streets of Boston: 1630-1822*. Boston: New England Historic Genealogical Society. Electronic Version; Whitehill, Walter Muir. 1968. *Boston: A Topographical History, 2nd Edition*. Cambridge, MA: The Belknap Press of Harvard University Press. Page 8.

called "joint-allocation problem," namely, allocating a single, scarce and therefore valuable resource among a number of competing demands.

Occupying space in the above- or below-ground portions of the ROW precludes a city or others from using that same space now and in the future. That is, the three-dimensional space occupied by a given conduit or wire obviously cannot be occupied by another. Besides the physical space occupied by a conduit or pipe, many cities require minimum setbacks or clearances around utilities placed in the ROW. Also, depending on the specifics of the use, the installation, the maintenance, and the replacement of any given facility in the ROW may create problems for and impose costs on the City and on other users of the ROW.

As applied to a city's ROW, today's scarcity and the resulting opportunity costs will persist tomorrow. That is, today's scarcity manifests itself in those many locations in which the use of the ROW for one service inhibits the use of the ROW or other properties for other services by the same or other users. That scarcity and the associated negative spillover effects will persist into the future. Such negative effects may include increased excavation or construction costs, increased costs associated with design and planning, costs associated with loss-of-service attributed to construction accidents or other damage to services in the ROW, increased travel time for vehicular traffic on the ROW, and lost revenues for businesses whose customers are inconvenienced by ROW construction.

Expressed on a cost basis, market-rate ROW fees should compensate a municipality not only for the opportunity costs of occupying space in the ROW, but also for the other costs a municipality incurs related to the ROW. These costs include, at a minimum: the fixed costs of establishing and developing the ROW, the costs over the long term of managing the municipality-wide ROW, the daily or periodic short-term O&M costs, and related administrative costs. Measuring each of these costs for a given ROW transactions would be complex, time consuming and inefficient. There are other, less expensive ways to determine a fair and reasonable market price, and those methods are commonly used by private entities and by federal, state, and local governments.

To the extent that a ROW fee is based on cost and not market price, and the cost does not capture the full range of costs that the municipality incurs related to the ROW, the resulting cost will subsidize the ROW user. That is, the user will not pay the full cost of establishing, occupying and managing the ROW. A subsidy to the ROW user also results in uncompensated costs to the municipality.

Like other real-estate assets within a city's boundary, a city's ROW yields value to the users of the ROW. Like other real-estate owners, a city should be able to charge for use of its property. In an economy based on competition, producers and owners of goods and services with economic value typically do not give them away free. In economic markets, prices serve as signals that help society put its resources to efficient use.[6] Not charging for use of the City's ROW would treat it as if it were a free good with no economic value. "A true 'free good' is one which is not scarce ... Examples of free goods are rare and perhaps becoming rarer still—sunshine in the Sahara Desert provides one example."[7]

Charging fees less than market rates for ROW access sends the signal that the resource is worth less than its true value. This could lead to inefficient use of the ROW that would also subsidize the user, and leave the municipality with uncompensated ROW-related costs.

Allocating the ROW by first-come, first-serve or on some other non-market basis makes no economic sense, especially given the external costs imposed on third parties if a ROW is over-consumed by any individual enterprise. The same result follows if one artificially limits a community to charging fees at less than fair market value. This is easily prevented by charging a ROW fee that reflects the ROW as a valuable asset or resource for which there are important and competing uses. Free and unrestricted–or underpriced—access to a City's ROW would increase the demands on the ROW and place substantial economic burdens on the City through additional inspection, maintenance and construction costs. Free or underpriced access would also increase the costs to other ROW users through unnecessary make-ready expenses, unnecessary design and modification expenses, and unnecessary repairs and disruptions caused by overuse of the resource.

Charging a fee helps ensure that the ROW will be used efficiently, that is, that the ROW will not be misused or wasted. Furthermore, the closer the fee approximates the relevant market price, the more likely the ROW will be used in an economically efficient manner, a fundamental criterion by which economists evaluate the performance of a market and overall social welfare.

## B. Calculating Fair Market Value for Occupying Space in a City's ROW

The appraisal literature describes a number of methods for calculating the market value of ROW access. We describe four methods.[8] The central point here is not that these methods are the only methods, or that a price is unreasonable unless it passes muster under one of these four tests. Rather, it

---

[6] See, for example, Byrns, Ralph T. and Gerald W. Stone, Jr. 1992. *Economics*, 5th Edition. New York: HarperCollins. Page 71; Nicholson, Walter. 1998. *Microeconomic Theory*, 7th Edition. Fort Worth, TX: Dryden Press. Pages 514-515; Pindyck, Robert S. and Daniel L. Rubinfeld. 2000. *Microeconomics*, 5th Edition. Upper Saddle River, N.J.: Prentice Hall. Page 590; Samuelson, Paul A. and William D. Nordhaus. 2001. Cited previously. Pages 27, 291.

[7] Pearce, David W. (ed). 1997. *The MIT Dictionary of Modern Economics*, 4th Edition. Cambridge: The MIT Press, Page 163.

[8] National Oceanic and Atmospheric Administration (NOAA). 2002. *Final Report: Fair Market Value Analysis for A Fiber Optic Cable Permit in National Marine Sanctuaries*. NOAA, National Ocean Service, National Marine Sanctuary Program. August. Pages 7-13.

is that there are a number of well-recognized ways of identifying the market value for property that do not require significant regulation.

1. Land-based appraisals: Analysts calculate the value of a ROW based on the value of land adjacent to the ROW. This is sometimes referred to as the "across-the-fence" (ATF) method. A variation on the ATF method acknowledges that because a ROW provides a continuous corridor, a ROW has a higher value than the disparate, unassembled adjacent parcels. This corridor value can exceed the ATF value by a factor of six or more.

2. The willing-buyer-and-willing-seller method: Analysts seek to replicate market negotiations over the value of the ROW. The seller considers his or her costs, including the value he or she could earn from other uses of the land. The buyer considers the income-generating potential of the ROW and the costs of alternative routes.

3. Income-based methods of valuation: Analysts take as given that a variety of assets contribute to a firm's income or value. A ROW may be one of many income-generating assets from which a firm would expect to earn a reasonable return. The analysts base the market value of the ROW on the return the asset generates for the firm.

4. The comparable-transactions method: Analysts base the market value of ROW on the sales or rental agreements for similar ROW. Information on most ROW transactions between private entities remains confidential. More publicly available information exists on ROW agreements between municipalities and private firms that want access to municipal ROW. The study of comparable transactions is an established practice for valuing ROW.[9] The degree of similarity between the comparable transactions and the ROW at issue helps specify the high and low measures of fair market value.[10]

---

[9] See, for example, Fitzgerald, Shawana. 2005. *Review of Fiber Optic Right of Way Pricing.* Prepared for the City of Portland. August 31. Page 6; NOAA. 2002. Cited previously; U.S. Department of Justice. 2001. *Uniform Appraisal Standards for Federal Land Acquisitions.* http://www.usdoj.gov/enrd/land-ack/yb2001.pdf

[10] Ring. A. 1970. *The Valuation of Real Estate.* Prentice Hall. In, Quan, D. and J. Quigley. 1989. "Inferring an Investment Return Series for Real Estate from Observations on Sales." *Journal of the American Real Estate and Urban Economics Association,* 17(2); and U.S. Department of Justice. 2001. Cited previously.

# V. ROW FEES BASED ON PERCENTAGE OF GROSS REVENUE OR PER LINEAR FOOT

## A. A ROW FEE BASED ON A PERCENTAGE OF GROSS REVENUES IS AN ACCEPTED METHOD OF ESTIMATING A FAIR AND REASONABLE ROW FEE

Charging a fee that is a percent of gross revenues is a reasonable way to price the ROW. Furthermore, it meets the generally accepted standard in economics for efficient compensation in exchange for goods or services, namely, a price that reflects the value of the good or service to the buyers and sellers. ROW, like other real-estate assets, convey value to users. Using the City's ROW conveys or adds value to the wireline telecoms that provide services through the ROW.

This method is straightforward and has low transaction costs. That is, both the City and the wireline telecoms can resolve the amount owed with minimal accounting and auditing. Moreover, a percentage-based fee is convenient because the fee directly tracks the amount of business passing through ROW facilities. Therefore, the fee reflects a reasonable and up-to-date measure of the value the wireline telecoms receive from using the City's ROW.

Considering the fees paid by telecom providers to municipalities provides meaningful information that can be useful when judging the reasonableness of fees paid by wireline telecoms. For example, telecom providers in Fargo, North Dakota[11]; Henderson, Nevada[12]; Wichita, Kansas[13]; Baton Rouge, Louisiana[14]; and Portland, Oregon[15] pay a ROW fee of 5 percent of gross revenues. Telecom providers in Georgia pay a fee of 3 percent of gross revenues to municipalities.[16]

---

[11] Fargo City Code. 2000. Article 24-03: Grant of Access and Use of Public Rights-of-Way. Pages 24-85.

[12] Henderson Municipal Code. Section 4.05.020(B)(1)(a). http://library6.municode.com/default-test/home.htm?infobase=16399&doc-action=whatsnew

[13] Wichita City Code. Section 3.93.004: Franchise and License Fees. Subsection 4.2:Franchise Fees. http://www.wichitagov.org/CityCode/Default.htm?code=3980

[14] City of Baton Rouge. 1989. City-Public Utility Ordinance. Adopted Metropolitan Council December 13. Ordinance 9027. http://brgov.com/DEPT/FINANCE/ordpubut.htm

[15] City of Portland, Cable Communications and Franchise Management, http://www.portlandonline.com/cable/index/cfm?c=33150

[16] State of Georgia, Offices of House and Senate Research. 2002. *Joint Study Committee on Franchise Fees and Conditions, Rights of Way & Tax Implications of Competitive Markets.* http://www.legis.state.ga.us/legis/2001_02/senate/research/franchise.html

## B. A ROW Fee Based on a Fee per Linear Foot Is an Accepted Method of Estimating a Fair and Reasonable ROW Fee

Calculating ROW fees on a per-linear foot basis is another accepted method of estimating the market value for using the ROW. In a survey of different fee structures used by municipalities to charge for ROW use, Bucaria and Kuhs found that charging based on linear feet of ROW is a fee structure commonly used by municipalities.

> "The fact that there are established telecommunications corridor right-of-way rental markets allows some direct rental rate comparisons to be made, often in terms of dollars paid annually per lineal foot of right of way, or conduit, or cable."[17]

> "Linear measure for both sales and rental comparison purposes are comparison approach methods. They are well accepted by both industry and property owner representatives. Linear measure data is relatively plentiful. Accordingly, use of this method of market comparison is valid and useful in telecommunications corridor valuation situations."[18]

Bucaria and Kuhs also note that the rate per linear foot may vary depending on the number of lines of fibers installed and the diameter of the conduit.

In a report on ROW fees, Fitzgerald also notes that charging for ROW access on a per-linear foot basis is common among municipalities.

> "Many entities charge for right of way easements on a per foot basis. Some of the fees are paid one-time, and others are charged annually. Such charges may not capture the full economic value of a right of way since they are not directly connected to the economic return earned by the entity granted the right."[19]

Per-linear-foot charges in municipalities with which we are familiar include: Macon, Georgia, $4.50; Savannah and Atlanta, Georgia, $5.00; Gainesville, Florida, $4.00;[20] Huntsville, Alabama charges $4.50 per foot for the first five years, increasing $1.50 per foot the next five years, and increasing an additional $1.50 per foot the next five years;[21] Burbank,

[17] Bucaria, Charles and Robert Kuhs. 2002. "Fiber Optic Communication Corridor Right-of-Way Valuation Methodology." *The Appraisal Journal*. April. Page 138.

[18] Bucaria and Kuhs. 2002. Previously cited. Page 143.

[19] Fitzgerald, 2005, previously cited, page 8.

[20] Personal communication with staff in the City of Huntsville, Alabama, pursuant to a prior engagement.

[21] An Ordinance Respecting the Use of the Public Rights-of-Way in the City of Huntsville, Alabama by Level 3 Communications, LLC. Ordinance No. 00-819. October 12, 2000. Section 8.1.

California, $3.99 per foot;[22] Glendale, California, $1.80 per foot;[23] Rialto, California, $2.00 per foot;[24] the City of Portland, Oregon charges approximately $2-3 per linear foot[25]; and Massachusetts charges $3.61 - $6.25[26]

Also, the Fitzgerald Report describes a number of contracts between public entities and a variety of parties for occupying space in the ROW or in other similar resources. Per-linear-foot charges are common when entities want to occupy a finite number of feet. Annual per-linear-foot charges ranged from less than $1.00 to over $100 per foot, where the higher charges are either for the placement of multiple ducts or fibers or for occupying space in resources such as elevated highways or the New York/New Jersey Lincoln Tunnel.[27]

# VI. TRUSTEE OBLIGATIONS DISCIPLINE MUNICIPAL ROW FEES

We have not seen examples of local governments charging inefficient or inequitable ROW fees. Likewise, we have not seen cases in which a municipality's ROW fees limited the availability or adoption of telecommunication services. Municipal entities have different goals, responsibilities, and functions than do corporate entities. Municipalities hold resources—including ROW resources—in trust for its citizens and businesses. For example, municipalities manage ROWs not to maximize profits or fiscal surpluses, but to promote economic development. Therefore, a municipality's pricing of ROW access is disciplined by obligations under its trusteeship to encourage ROW access that helps promote economic growth and development for residents and businesses. To the extent that the electorate feels that elected officials have mismanaged their trust responsibilities regarding ROW access or other resources, they can recall or not reelect these officials. Managing resources in ways that keep the public trust also helps discipline municipal pricing of ROW access.

Moreover, the proposition that a local government would exercise monopoly power and charge supra-competitive rates to access its ROWs—even if it had such monopoly power—is an obviously flawed economic-development strategy. Municipalities compete vigorously with one another to

---

[22] Encroachment Permit Agreement between Level 3 Communications, LLC and the City of Burbank. October 12, 2000.

[23] Telephone Corporation Encroachment Permit Agreement between Level 3 Communications, LLC and the City of Glendale.

[24] Telecmmunications Encroachment Permit Agreement between Level 3 Communications, LLC and the City of Rialto. October 16, 2000.

[25] City of Portland, Cable Communications and Franchise Management, http://www.portlandonline.com/cable/index.cfm?c=33150

[26] Fitzgerald, 2005, previously cited.

[27] Fitzgerald, 2005, previously cited, p. 11.

attract and encourage deployment of advanced and reliable utilities, that will in turn, attract and support new industrial, commercial and residential development. This is a strong incentive not to overprices the fees to access ROWs.

W. Ed Whitelaw

W. Ed Whitelaw

1-27-10

Bryce Ward

1/27/2010

Abridged Vita

# W. ED. WHITELAW

January 2010



| | | |
|---|---|---|
| **POSITION AND ADDRESS** | Chair of Board<br>ECONorthwest<br>99 West 10th, Suite 400<br>Eugene, Oregon 97401<br>(541) 687-0051<br>whitelaw@eugene.econw.com | Professor Emeritus<br>Department of Economics<br>University of Oregon<br>Eugene, Oregon 97403<br>(541) 346-4661 |



## EDUCATION

Ph.D., Economics, Massachusetts Institute of Technology, 1968
B.A., Mathematics, Political Science, Economics, University of Montana, 1963

## EMPLOYMENT

| | |
|---|---|
| 2009- | Chair of Board, ECONorthwest |
| 1974-09 | President, ECONorthwest |
| 2000- | Professor Emeritus, Department of Economics, University of Oregon |
| 1981-00 | Professor, Department of Economics, University of Oregon |
| 1987-90 | President, Economic Policy Institute Northwest (EPI) |
| 1970-81 | Associate Professor, Department of Economics, University of Oregon |
| 1974-75 | Staff Economist, Oregon Coastal Conservation and Development Commission |
| 1970-71 | Visiting Research Fellow and Director of Urban Studies, Institute for Development Studies, University of Nairobi, Kenya (financed by the University Development Program, Rockefeller Foundation) |
| 1970-71 | Chief Economist, Nairobi Urban Study (financed by the Nairobi City Council, the Kenya Ministry of Finance and Economic Planning, and the United Nations Development Program) |
| 1967-70 | Assistant Professor, Department of Economics, University of Oregon |
| 1967-70 | Research Associate, Bureau of Governmental Research, University of Oregon |
| 1964-67 | New England Economic Research Foundation and Federal Reserve Bank of New York |
| 1961-62 | Colgate Palmolive, Special Projects Division (programming, statistics) |

## HONORS, FELLOWSHIPS, AND SCHOLARSHIPS

University of Oregon
Ersted Award for Outstanding Teaching, 1970

Harvard University
Dissertation Scholarship, Harvard Program on Regional and Urban Economics, 1966-67

MIT
Woodrow Wilson Fellowship, 1963-65
MIT Graduate Fellowship, 1965-66

Graduate Fellow, Economic Development Administration Summer Institute, Williamstown, Massachusetts, 1966

University of Montana

High Honors

Pi Mu Epsilon, Mathematics Honorary

Phi Kappa Phi, Scholastic Honorary

## TECHNICAL ADVISORY AND EDITORIAL POSITIONS

| | |
|---|---|
| 1998- | Goal 5 Regional Resources for Fish and Wildlife Habitat Protection Peer Review Committee, Portland Metro |
| 1991- | Board of Economists, *Eugene Register Guard* |
| 1989-05 | Oregon Progress Board, State of Oregon; committees: Chairperson, Benchmark Update Committee; Member, Vision Committee; Member, Sustainability Measurement Work Group |
| 1995-98 | National Advisory Council for Environmental Policy and Technology, Environmental Protection Agency |
| 1987-92 | Forecast Panel, *Pacific Northwest Executive* |
| 1988-90 | Board of Advisors, Northwest Policy Center, Seattle, Washington |
| 1980-90 | Board of Directors, Pacific Northwest Regional Economic Conference |
| 1987-89 | Economic Development Commission, State of Oregon |
| 1986-87 | Board of Directors, Eugene-Springfield Metropolitan Partnership |
| 1984-86 | Board of Economists, *Portland Business Journal* |
| 1979-86 | Head, Real Estate Research Committee, Eugene-Springfield |
| 1972-86 | Editorial Committee, *The Annals of Regional Science* |
| 1984-85 | Business Forecast Panel, *Oregonian* |
| 1984-85 | Demand Forecasting Advisory Committee, Northwest Power Planning Council |
| 1981-83 | Scientific and Statistical Advisory Committee, Northwest Power Planning Council |
| 1980-82 | Governor's Council of Economic Advisors, State of Oregon |
| 1980 | Water Resources Division, Department of Natural Resources and Conservation, State of Montana |
| 1979-80 | Employment and Training Division, Department of Labor and Industry, State of Montana |
| 1977-78 | Advisory Committee on Economic Decline and Fiscal Stress in Cities, President's Domestic Council |
| 1977-78 | Task Force on Local Economic Planning, Oregon Department of Economic Development |
| 1976-77 | Advisory Committee, National Science Foundation Project on Onshore Impacts of Offshore Oil and Gas Exploration and Development |
| 1972-75 | Citizens' Advisory Committee on Transportation Planning, Lane Council of Governments, Lane County, Oregon |
| 1972-74 | Planning Committee, University Consortium on Transportation, Oregon Department of Transportation |

## PUBLICATIONS

### Subject to Formal Peer Review

*An Analytic Typology for Examining the Economic Effects of Ecosystem Management.* University of Michigan, School of Public Policy. Working Paper No. 407. With P. Courant and E. Niemi. May 1997.

*Assessing Economic Tradeoffs in Forest Management*. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. General Technical Report PNW-GTR-403. With E. Niemi. 1997. 1999 (revised).

*Environmental Protection and Jobs: A Brief Survey*. With E. Niemi. October 1995.

*A Method for Estimating the Economic Effects of Habitat Protection*. Portland, OR: U.S. Fish and Wildlife Service. With E. Niemi and A. O'Sullivan. January 1994.

*The Potential Social and Economic Impacts of Long Rotation Timber Management*. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. With E. Niemi. May 1993.

*Pacific Northwest Forest-Policy Baselines*. Washington, DC: The Wilderness Society. With E. Niemi. April 1993.

"New Conflicts Stir Managers of U.S. Forests." *FORUM for Applied Research and Public Policy*, 6 (3): 5-12. University of Tennessee, Energy, Environment, and Resources Center, and Oak Ridge National Laboratory. With E. Niemi and R. Mendelsohn. Fall 1991.

*Transition Strategies for Timber-Dependent Communities*. Washington, DC: The Wilderness Society. With E. Niemi and C. Batten. 1990.

*New Perspectives and the Forest Service: A New Way of Thinking*. Washington, DC: U.S. Department of Agriculture, Forest Service. With E. Niemi and R. Mendelsohn. 1990.

"Oregon's Strategic Economic Choices." In LuAnna McCann (ed.), *Oregon Policy Choices*. University of Oregon, Bureau of Governmental Research and Service. With E. Niemi. 1989.

*The Economic Impact of Proposed Changes in Washington State Forest Practices Rules*. Olympia, WA: Washington State Department of Natural Resources. With R. Gregory. 1987.

*Economic Analysis of the Environmental Effects of a Combustion-Turbine Generating Station at Fredericksen Industrial Park, Pierce County, Washington: Final Report*. Portland, OR: U.S. Department of Energy, Bonneville Power Administration. With R. Mendelsohn and E. Niemi. March 1984.

*Economic Analysis of the Environmental Effects of a Coal-Fired Electric Generator* (at Boardman, Oregon). Portland, OR: U.S. Department of Energy, Bonneville Power Administration. With R. Mendelsohn and E. Niemi. 1983.

*Review of Methodologies for Assessing the Environmental Costs and Benefits of Acquisitions. Benefit-Cost Analysis and Environmental Impacts: A Review of the Literature and an Evaluation of Methodologies*. Portland, OR: U.S. Department of Energy, Bonneville Power Administration. With J. Friedman and E. Niemi. 1981.

"Measuring the Effects of Public Policies on the Price of Urban Land." In J. Thomas Black and James E. Hoben (eds.), *Urban Land Markets: Price Indices, Supply Measures, and Public Policy Effects*. Washington, DC: Urban Land Institute. 1980.

"Urban-Rural Income Transfers in Kenya: An Estimated Remittances Function." *Economic Development and Cultural Change* 22 (3). With G. Johnson. 1974.

### Not Subject to Formal Peer Review

"Economic Bridges Falling Down." *Eugene Weekly*. Whitelaw, E. and B. Ward. October 8, 2008.

“Time’s running out on the Columbia.” *Oregonian.* Whitelaw, E. and E. MacMullan. December 19, 2007.

“Dream On.” *Oregon Quarterly*. Whitelaw, E. and B. Ward. Winter 2007.

"Nature's Trust as a Paradigm for Scientific Input in Policy Decisions." Abstract, Annual Conference of the American Geophysical Union, San Francisco, California. December 2007.

“Cities Challenged in Their Economic Interpretation of the Telecommunications Act of 1996.” *Municipal Lawyer.* With E. MacMullan and A. Pearce. September/October 2006.

“Still the Land of Opportunity?” *Oregonian.* With J. Tapogna and B. Ward. March 2006.

“Hungry for Answers.” *Oregonian.* With J. Tapogna. Spring 2004.

“Drifting Away.” *Oregonian.* With J. Tapogna. October 2003.

“The High Cost of Free Water.” *Oregon Quarterly*. With E. Niemi. Spring 2003.

“Families and Businesses That Brave the State’s Faltering Economy Risk an Unstable Future.” *Oregonian*. With J. Tapogna. February 2003.

“A Framework for Estimating the Costs and Benefits of Dam Removal.” *BioScience* 52 (8). With E. MacMullan. August 2002.

"Bridge Over Troubled Water." *Oregon Quarterly*. With E. Niemi. Winter 2001.

*Coping with Competition for Water: Irrigation, Economic Growth, and the Ecosystem in the Upper Klamath Basin*. With E. Niemi and A. Fifield. November 2001.

"Evaluating Takings and Measure 7." *Oregon's Future*. With R. Pozdena, T. Moore, J. Tapogna, and J. Ebenhoh. Spring 2001.

*Competition Matters: An Economist's Perspective of Collaborations and the National Forests.* With E. Niemi. January 2001.

*Estimating Streamflows from National Forests in the Willamette River Basin, Oregon.* U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. With E. Niemi. 2001.

*Green Building: Saving Salmon, the Environment, and Money on the Path to Sustainability*. Under a grant provided by: The Center for Watershed and Community Health, Mark O. Hatfield School of Government, Portland State University. With J. Ebenhoh, E. Niemi, and J. Tapogna. September 2000

"Breaching Dam Myths." *Oregon Quarterly*. Autumn 2000.

"Bird Of Doom...Or Was It?" *The Amicus Journal* 22 (3). With E. Niemi and E. Grossman. Fall 2000.

"Salmon and the Economy." *Conservation Biology in Practice* 1 (1): 20-21. With E. Niemi. Spring 2000.

*An Economic Assessment of the Proposed Animas-La Plata Project.* With E. Niemi. April 2000.

*Saving Salmon, Sustaining Prosperity: An Introductory Handbook and Reference for the Puget Sound Region and Washington.* Under a grant provided by: The Center for Watershed and

Community Health, Mark O. Hatfield School of Government, Portland State University. 2000.

*Salmon, Timber and the Economy*. Pacific Rivers Council, Oregon Trout, Audubon Society of Portland, and Institute for Fisheries Resources. With E. Niemi, M. Gall, and A. Fifield. December 1999.

*The Economic Wellbeing of Michigan Bands of Native Americans*. Michigan Department of Natural Resources. December 1999. (Confidential litigation product.)

*Salmon and the Economy: A Handbook for Understanding the Issues in Washington and Oregon*. Under a Grant provided by: The Center for Watershed and Community Health, Mark O. Hatfield School of Government, Portland State University. With E. Niemi, D. Lindahl, A. Fifield, and M. Gall. November 1999.

*An Economic Strategy for the Lower Snake River*. Trout Unlimited. With E. MacMullan. November 1999.

"Reforming Welfare Reform." *Oregon Quarterly*. With J. Tapogna. Autumn 1999.

*The Sky Did NOT Fall: The Pacific Northwest's Response to Logging Reductions*. Earthlife Canada Foundation and Sierra Club of British Columbia. With E. Niemi and A. Johnston. April 1999.

*The Ecosystem-Economy Relationship: Insights from Six Forested LTER Sites*. National Science Foundation. With P. Courant and E. Niemi. November 1997.

"Costs and Benefits: Reflections of an Oregon Economist." *Inquiry*. November 21, 1997.

"What Price Prisons?" *Oregon Quarterly*. Summer 1997.

*Integrating Resource Conservation and Economic Development*. With P. Courant and E. Niemi. 1997.

"New Economic Perspectives of Ecosystem Management: A Critique of Recent Efforts." May Submission to *Environmental Management*. With P. Courant and E. Niemi. 1997.

*Facing the Tradeoffs: Economic Development and Resource Conservation in Louisiana*. With E. Niemi, C. Heflin, and A. Gorr. June 1996.

*The Potential Economic Consequences of Designating Critical Habitat for the Marbled Murrelet: Final Report*. U.S. Fish and Wildlife Service, Portland Field Office. With E. Niemi, E. MacMullan and D. Taylor. May 1996.

*The Potential Economic Consequences of Designating Critical Habitat for the Rio Grande Silvery Minnow: Draft Report*. U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office. With E. Niemi and T. McGuckin. 1996.

*Economic Well-Being and Environmental Protection in the Pacific Northwest*. Pacific Rivers Council. With T. Power. 1996.

*Pacific Northwest Regional Economic Elements Affected by Fish Hatchery Management Decisions*. Columbia Basin Fish and Wildlife Foundation. With E. Niemi. 1996.

"Putting Merit in the Matrix." *Oregon Quarterly*. Winter 1995.

"Other Lessons from the Northwest." *Vermont Law Review* 19 (2). Winter 1995.

"Rich Oregonian, Poor Oregonian." *Oregon Quarterly*. Summer 1995.

*The Potential Economic Consequences of Critical Habitat Designation for the Lost River Sucker and the Shortnose Sucker: Final Report.* U.S. Fish and Wildlife Service, Portland Field Office. With E. Niemi and E. MacMullan. August 1995.

*Economic Consequences of Management Strategies for the Columbia and Snake Rivers.* Confederated Tribes of the Umatilla Indian Reservation. With E. Niemi and E. MacMullan. July 1995.

*Integrating Economics and Resource-Conservation Strategies.* With E. Niemi. June 1995.

*The Columbia River and the Economy of the Pacific Northwest.* With E. Niemi, A. Gorr, and E. MacMullan. May 1995.

"Dubious Theory about Economy Leads Us Astray." *The Register-Guard*. May 1995.

"Oregon's Money Doesn't Just Grow on Trees." *The Oregonian*. April 1995.

*The Economic Consequences of Protecting Salmon Habitat in Idaho (Preliminary Report).* Pacific Rivers Council. With E. Niemi. March 1995.

*The Full Economic Costs of Proposed Logging on Federal Lands.* With E. Niemi. March 1995.

*Economic Consequences of an Injunction to Protect Salmon Habitat on the Wallowa-Whitman and Umatilla National Forests: Preliminary Report.* With E. Niemi and E. MacMullan. 1995.

*The Potential Economic Consequences of a Reduction in Timber Supply from the Tongass National Forest.* With E. MacMullan. December 1994.

"Swimming Upstream." *Oregon Quarterly*. Winter 1994.

"School Dazed." *Oregon Quarterly*. Summer 1994.

"Growing Pains." *Oregon Quarterly*. With T. Moore. Spring 1994.

*Economic Critique of the FSEIS on Management of Old-Growth Habitat.* With E. Niemi. March 1994.

"Guessing at the 'Hood: An Urban Future." *Oregon Business*. January 1994.

"After the Owl." *Old Oregon*. With E. Niemi. Winter 1993. Reprinted in the *Seattle Post-Intelligencer* as "Jobs & Nature," December 12, 1993.

*Environmental Externalities and Utility Regulation.* Washington, DC: National Association of Regulatory Utility Commissioners. With E. Niemi. September 1993.

"Oregon's Real Economy." *Old Oregon*. Winter 1992. Reprinted in *The Register Guard*, December 13, 1992, and through Oregon Business' datafax system, February 1993.

"Payback Time." *Old Oregon*. Spring 1992.

"A More Civil War." *Old Oregon*. With E. Niemi. Winter 1990.

"Oregon's Turn: A Blueprint for Economic Growth in the 1990s." *Old Oregon*. Spring 1990.

*Investing in Dislocated Families.* With E. Niemi. 1990.

"A Log-Export Ban, Alone, Is Not Enough." *The Register-Guard*. With E. Niemi. October 13, 1989. Reprinted in the *Oregonian*, Pacific Northwest International Trade Association's *Trade Winds*, and various Oregon weeklies.

"Money: The Debt We Owe Ourselves." *Old Oregon*. With E. Niemi. Autumn 1989.

"Plan Now for More Timber Industry Changes." *The Register-Guard*. With E. Niemi. July 25, 1989. Reprinted in the *Oregonian*.

*Looking Beyond the Owls and the Logs: A White Paper*. Prepared for Governor Goldschmidt's statewide Timber Summit. With E. Niemi. June 1989.

"Improving Oregon's Economy by Improving its Schools." *Proceedings of the 23rd Annual Pacific Northwest Regional Economic Conference*. With E. Niemi. June 1989.

"Migration, Economic Growth, and the Quality of Life." *Proceedings of the 23rd Annual Pacific Northwest Regional Economic Conference*. With E. Niemi. June 1989.

"The Greening of the Economy." *Old Oregon*. With E. Niemi. Spring 1989. Reprinted in the *Oregonian* (April 3, 1989), the Sierra Club's *Runoff* (April 1989), and *Forest Watch* (April 1989).

"The West, Garbage, and the American Dream." *Pacific Northwest Executive*. With E. Niemi and T. Moore. January 1989.

"The Once and Future Northwest." *Old Oregon*. With E. Niemi. Autumn 1988.

"Developing a Strategic Plan for Regional Economic Growth." *Proceedings of the 22nd Annual Pacific Northwest Regional Economic Conference*. June 1988.

"Getting Controversial Public Facilities Built: How Can Economics Help?" *Proceedings of the 22nd Annual Pacific Northwest Regional Economic Conference*. With T. Moore. June 1988.

"Electricity Prices and Economic Development: Implications for the Pacific Northwest." *Proceedings of the 22nd Annual Pacific Northwest Regional Economic Conference*. With E. Niemi. June 1988.

"Focusing the Northwest's Vision." *The Once and Future Northwest*. University of Washington Institute for Public Policy and Management, Northwest Policy Center. With E. Niemi. April 1988.

"Focusing the Northwest's Vision." *Pacific Northwest Executive*. With E. Niemi. 1988.

"Strategic Economic Development for Oregon." *Governmental Notes*. University of Oregon, Bureau of Governmental Research and Service. December 1987.

*Accelerating Our Economic Development: Two Views*. Olympia, WA: Washington State Institute for Public Policy. With T. Tabasz. October 1987.

"New Economic Strategies for Regional Development." *Proceedings of the 21st Annual Pacific Northwest Regional Economic Conference*. June 1987.

"Local Economy Slipped During the 1980s, Teachers Kept Ahead of Inflation." *The Register-Guard*. With E. Niemi. May 5, 1987.

*Managing Old-Growth Forests in the Pacific Northwest: Reducing the Costs of Preservation.* With R. Mendelsohn, E. Niemi, C. Binckley, and R. Gregory. May 1987.

"Investing in Oregon's Interests: Oregon Using Wrong Strategies." *The Register-Guard*. January 27, 1987.

"The Once and Future Northwest." *Pacific Northwest Executive*, 2 (3). July 1986.

"Smokestack Memories: The Future in Our Past." *Visions*. Oregon Graduate Center. Spring 1986.

"Economic Choices for the Future of Our Region." *Old Oregon*. University of Oregon Round Table. Autumn 1985.

“More Is More: Small Businesses Bring Diversity, Vigor to Economy." *Oregonian*. June 16, 1985.

"The Economy and the Student: Students Need More Training in Analysis and Expression." *The Register-Guard*. May 22, 1984.

"Rising Housing Starts Needed to Trigger Employment Drop: Local Economy May Stay Bad 'Til '84." *The Register Guard*. February 23, 1984.

*Analysis and Forecasts of the Demand for Rock Materials in Oregon.* Oregon Department of Geology and Mineral Industries. Special Paper 5. With J. Friedman and E. Niemi. 1979.

*Rural-Urban Relations, Low-Income Settlements, Intra-Urban Mobility and the Spatial Distribution of Households in Nairobi, Kenya.* Working Papers in Economics No. 6. Eugene, OR: University of Oregon, Department of Economics. 1974.

*Nairobi Household Survey: Description of the Methodology and Guide to the Data.* Discussion Paper No. 116. Nairobi. Kenya: University of Nairobi, Institute for Development Studies. 1971.

*Nairobi Household Survey: Some Preliminary Results.* Staff Paper No. 117. Nairobi, Kenya: University of Nairobi, Institute for Development Studies. 1971.

*The Employment and Income History of a House Servant in Nairobi* 24. Staff Paper No. 116. Nairobi, Kenya: University of Nairobi, Institute for Development Studies. 1971.

*The Objectives and Tasks of the Economics Group for the Urban Studies of Nairobi.* Staff Paper No. 84. Nairobi, Kenya: University of Nairobi, Institute for Development Studies. 1970.

*Interstate Comparisons of State and Local Revenues and Expenditures.* Eugene, OR: University of Oregon, Bureau of Governmental Research. 1968.

## CONSULTING PROJECTS

Conducted a valuation of a right-of-way occupied by a discharge pipeline from the Georgia Pacific facility in Toledo for the City of Newport. City of Newport, Oregon. 2008-ongoing

Provided data collection services to determine garbage and yard debris can weights and set-out rates for a city. City of Eugene, Oregon. 2008-ongoing

Analyzed the social costs and benefits underlying aggregate mining on prime farmland. Private client. 2006-2007

Evaluated the economic and policy issues related to a proposed urban housing development. City of Portland, Oregon. 2006-2007

Critiqued a draft economic analysis of land use conflicts between aggregate mining and agriculture in Oregon. Oregon Farm Bureau Special Aggregate Committee. 2005.

For a state agency, reviewed an analysis of the long-term benefits, costs, and risks of alternative cleanup remedies for a Superfund site located in a marine environment near a major metropolitan area. Private client. 2005.

Reviewed and evaluated the economic components of a feasibility study and preferred clean-up remedy for a contaminated site. Washington Department of Ecology. 2005.

Developed a model to calculate the range of economic costs and benefits of projects and policy options that affect water quality and quantity in the City of Portland's watersheds and in a section of the Willamette River. City of Portland. 2003-2005.

Described the economic tradeoffs of allowing, limiting, or prohibiting development in significant riparian areas and wildlife habitat in the Portland metropolitan area. 2002-2004.

Contributed to the drafting of a letter signed by more than 100 economists and addressed to President Bush and the governors of eleven western states regarding the economic importance of the West's natural environment. Center for Watershed and Community Health. 2003.

Studied the economic impacts associated with the operation of a hospital. Private client. 2001-2003.

Developed an economic model that calculated the net benefits of riparian-restoration projects. Clean Water Services. 2002.

Examined the competition for water in the Upper Klamath Basin and the relationship between water and the economy. Public Interest Projects. 2000-2002.

Developed a method for determining the sediment-related costs imposed on the City of Salem and its industrial/commercial water users during and following a major flood event in the North Santiam watershed. U.S. Environmental Protection Agency and National Science Foundation. 1997-2002.

Developed a handbook on the economic factors associated with relicensing a hydroelectric dam. Hydropower Reform Coalition and American Rivers. 2001.

Studied the economic issues associated with water management services and the economic implications associated with the federal Endangered Species Act and Clean Water Act. Clean Water Services. 2001.

Developed a mitigation plan for the potential negative economic consequences of bypassing four dams on the Lower Snake River. Trout Unlimited. 1999-2000.

Initiated a multi-year effort to assess the economic costs and benefits of salmon conservation measures in the Pacific Northwest. Center for Watershed and Community Health and Ford Foundation. 1998-2001.

Determined the share of natural and actual streamflow that originates on national-forest lands in Oregon's Willamette River Basin. U.S. Environmental Protection Agency. 2000.

Evaluated issues of regulatory takings and compensation, discussed the potential effects of various implementations of Measure 7, and proposed guidelines for public policies that address the issues that Measure 7 raised. Oregon Business Council. 2000.

Assessed the potential economic benefits and costs of the reservoir, related infrastructure, and activities included in the proposed Animas-La Plata project in southwestern Colorado. Earthjustice. 2000.

Evaluated the potential economic consequences of efforts to adjust Oregon forest practices to provide a high probability of protecting and restoring aquatic habitat on forestlands important for salmonids. Pacific Rivers Council. 1998-1999.

Evaluated the economic consequences of ecosystem-management decisions in the upper Willamette River Basin and how these consequences influence water and land use in the Eugene-Springfield area. U.S. Environmental Protection Agency. 1998-2000.

Analyzed the ecological, demographic, and economic benefits and costs of watershed restoration as part of a multidisciplinary team working to balance ecological needs with social constraints on investments. U.S. Environmental Protection Agency. 1997-2001.

Designed the analysis and determined the economic causes and effects relevant to the dynamic ecological systems characterizing the Willamette River Basin in Oregon. U.S. Environmental Protection Agency. 1995-2001.

Evaluated the economic impacts of bypassing four federal dams on the Lower Snake River and developed a plan to mitigate the negative consequences of the bypass. Trout Unlimited and Earth Justice. 1999.

Critiqued a draft report by the U.S. Forest Service regarding the demand for timber in the Tongass Forest. Alaska Rainforest Campaign. 1999.

Evaluated the economic consequences of new restrictions on Alaska's fishing industry. Earth Justice. 1999.

Described the economy's response in the Pacific Northwest to the dramatic reductions in logging that occurred during the 1980s and 1990s. BC Wild, Earthlife Canada Foundation, and Sierra Club of British Columbia. 1998-1999.

Analyzed the economic impacts of river and wetlands restoration in the Missouri River Basin and prepared a manual for assessing the socioeconomic impacts of ecological restoration projects for rivers and floodplains in the western United States. U.S. Environmental Protection Agency. 1995-1997.

Analyzed the relationship between the regional economy and natural resources of Louisiana by presenting workshops and developing an information base for local stakeholders. Ford Foundation and Louisiana State University. 1996-1997.

Analyzed problems related to scarce water resources, environmental protection, economic development, tribal self-determination, public health, and public land management in the Upper Rio Grande Basin, and recommended actions and federal policies to resolve these problems. Western Water Policy Review Advisory Commission. 1996-97.

Conducted a three-year study to describe, explain, and communicate the relationships of forested ecosystems and regional economies. National Science Foundation. 1994-1997.

Developed the preliminary design of a study to assess the potential economic costs and benefits of mandatory medical monitoring of agricultural workers who load, mix, or apply the pesticide cholinesterase. Sierra Club Legal Defense Fund. 1996.

Evaluated alternatives for reforestation of marginal agricultural lands in the Lower Mississippi Delta. Business Council for Sustainable Development. 1996.

Analyzed the relationship between the regional economy and natural resources of Louisiana. W. Alton Jones Foundation. 1995-1996.

Analyzed the environmental externalities associated with industrial activities affecting coastal and estuarine resources in Louisiana. W. Alton Jones Foundation. 1995-1996.

Evaluated the role of natural resources and traditional extraction industries in the Pacific Northwest and how they influence future economic trends for individual communities. Pacific Northwest Economics Workshop, Pacific Rivers Council. 1995-1996.

Conducted an economic analysis of the designation of critical habitat for the Rio Grande silvery minnow in the Rio Grande River Basin. U.S. Fish and Wildlife Service. 1994-1996.

Conducted an economic analysis of the designation of critical habitat for the marbled murrelet in Oregon, Washington, and California. U.S. Fish and Wildlife Service. 1994-1996.

Described the economic effects of the designation of critical habitat to support the recovery of two endangered fish in the Upper Klamath Basin. U.S. Fish and Wildlife Service. 1993-1996.

Prepared a response to the *Draft Environmental Impact Statement for the System Operation Review* prepared by the federal water-management agencies for the Columbia River. Confederated Tribes of the Umatilla Indian Reservation. 1995.

Analyzed the role of the Columbia River in the economy of the Pacific Northwest and described an economic framework for analyzing the economic consequences of alternatives for managing the Columbia River. Northwest Water Law and Policy Project. 1995.

Prepared a paper that demonstrated a common analytical framework for economic analysis to integrate resource-conservation and economic-development strategies. Ford Foundation, Rural Poverty and Resources Program. 1995.

Analyzed issues related to integrating economics and resource-conservation strategies. Ford Foundation. 1995.

Analyzed the economic principles applied to state water regulation, describing how historic and current water-regulatory policies violate these principles, and illustrating the economic costs that accrue to citizens. Bullitt Foundation and Water Watch. 1994-1995.

Analyzed the relationship between the regional economy and natural resources of the Southern Appalachians. U.S. Forest Service. 1994-1995.

Analyzed the Interior Columbia River Basin Ecosystem Management Project to ensure it internalized the externalities of resource-extraction industries on federal lands in eastern Washington, eastern Oregon, and Idaho. W. Alton Jones Foundation. 1994-1995.

Evaluated the economic components of old-growth forests associated with spotted owls and illustrated the potential impact on employment of forest-management alternatives that would jeopardize the region's quality of life. Private client. 1994.

Analyzed the economic impacts of curtailing grazing on public lands that support endangered salmon in eastern Oregon, eastern Washington, and Idaho. Pacific Rivers Council. 1994.

Calculated the economic impacts and values associated with the public acquisition of private land for use as a wildlife habitat. Washington Department of Wildlife. 1993.

Analyzed the timber situation in the Pacific Northwest in the context of the laws passed by Congress, the actions of executive-branch agencies, and the rulings of the federal judiciary. Wilderness Society. 1993.

Calculated the economic impact associated with a proposal to restrict logging in the Sequoia National Forest and to establish the Sequoia National Monument. Private client. 1993.

Developed a method for assessing the economic effects of designating critical habitat for threatened or endangered species. U.S. Fish and Wildlife Service. 1993.

Integrated the results from past studies into a summary of the economic importance of the salmonid fishery in the Pacific Northwest. Pacific Rivers Council. 1993.

Assisted with the design and conducted an economic evaluation of the Pacific River Council's Restoration Initiatives, a series of demonstration projects designed to rehabilitate degraded watersheds. Pacific Rivers Council. 1993.

Described the theoretical issues underlying efforts by state commissions to introduce environmental externalities into the regulatory process, the procedural opportunities for doing so, and the practical lessons from case studies of six states. National Association of Regulatory Utility Commissioners. 1992-93.

Analyzed the social implications of managing the federal forests in the Douglas-fir regions on longer rotations. U.S. Forest Service. 1992.

Developed the preliminary study design for using contingent-valuation methods to determine the value of environmental externalities from electrical generation and transmission. U.S. Department of Energy, Bonneville Power Administration. 1992.

Developed and evaluated alternative approaches for ensuring that the activities of state and federal agencies are consistent with Oregon's Strategic Plan. Oregon Economic Development Department. 1992.

Evaluated adjustments applied to the economic costs of alternative energy resources to account for environmental externalities in PGE's least-cost planning effort. Portland General Electric. 1992.

Provided the Tri-County Metropolitan Transportation District in Portland with quarterly forecasts of its payroll-tax revenues, payments from the State of Oregon, the region's economic condition, employment by industry, income by source, the price of diesel fuel, and the consumer price index for urban wage earners. Tri-County Metropolitan Transportation District. 1981-92.

Collected data on the costs (equipment, resources, personnel) of responding to an offshore oil spill within 24 hours. Private client. 1991-92.

Designed and conducted research on the impacts of land use on Oregon's transportation systems and costs. Oregon Department of Transportation. 1991-1992.

Developed a strategic plan for allocating state resources to assist dislocated workers and timber-dependent communities, and a set of legislative recommendations for implementing the plan. Oregon State Legislative Joint Committee on Forest Products Policy. 1990.

Described the forces and factors that underlie the controversy surrounding the U.S. Forest Service's land-management program and outlined corrective actions. U.S. Forest Service. 1990.

Analyzed the impact of listing the spotted owl as an endangered species for several public and private clients, including the City and School District of Eugene, Oregon, the Tri-County Metropolitan Transportation District in Portland, and electric utilities in the Eugene metropolitan area. 1990.

Assessed the impacts of timber harvests with and without a change in forest management policy that would protect most or all of the remaining old-growth forest on federal lands in three timbersheds: Grays Harbor and Pacific Counties in Washington; Linn and Lane Counties in Oregon; and Siskiyou County in California. Wilderness Society. 1990.

Assessed policies for redirecting growth from the Puget Sound region to other parts of the state and policies for redirecting growth within the Puget Sound region. Puget Sound Council of Governments. 1990.

Described the economic and environmental impacts of the Exxon Valdez oil spill on Alaska's communities. 1989-90.

Analyzed the potential contribution to local and regional economic development of a proposed mixed-use development in downtown Eugene and the appropriateness of state support for required utility relocation. City of Eugene. 1989.

Developed a method for setting fees for over 500 services Lane County provides. Lane County Finance and Management Services. 1987-88.

Analyzed proposed economic-evaluation procedures for allocating unappropriated water in the Snake River Basin, especially the adaptation of benefit-cost methodologies designed for federal decision-making to state and local policy. Idaho Office of the Governor, Division of Financial Management. 1985-88.

Supervised and directed the analysis of the economic costs and benefits of the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program. Northwest Power Planning Council. 1988.

Analyzed the economic feasibility of relocating the section of Interstate-5 between the Marquam and Fremont bridges in Portland. City of Portland, Department of Transportation. 1988.

Conducted an economic feasibility analysis of a proposed publicly owned cable-television system. Springfield Utility Board. 1987-88.

Analyzed the economic impact of a plant closure in Dallas, Oregon and advised government officials on immediate mitigative solutions and on long-term economic development strategies. Mid-Valley Council of Governments. 1988.

Analyzed the development of independently owned, small electricity generators operating under PURPA contracts in Oregon. Oregon Public Utility Commission. 1988.

Analyzed the rate of absorption of industrial space in the Eugene-Springfield area since 1976. Eugene/Springfield Metropolitan Partnership. 1987-88.

Evaluated several land-use options for vacant property in the Glenwood district of Eugene, Oregon. City of Eugene. 1987-88.

Analyzed the likely effects of reopening part of Willamette Street to automobile traffic. City of Eugene. 1987-88.

Led a team of economists and planners studying the economic, demographic, fiscal, and community-service impacts of siting a proposed high-level nuclear waste repository at Hanford, Washington. Impact Assessment Inc. and Washington Department of Ecology. 1987.

Analyzed the socioeconomic characteristics of Atlanta, Idaho, the likely impacts of a proposed open-pit gold-mine near Atlanta, and the dollar value of major costs and benefits. U.S. Forest Service. 1986-87.

Analyzed the fiscal impacts of changes in timber-sale contracts, including the fiscal and economic implications of alternative proposals for offering contractual relief to firms holding contracts for state-owned timber. Oregon Division of State Lands. 1987.

Analyzed the impact of alternative wholesale power rates on irrigated agriculture and developed efficient-rate mechanisms to enhance the viability of this industry. Northwest Irrigation Utilities. 1986-87.

Evaluated the feasibility of constructing an 18-hole, regulation-size golf course on a 210-acre parcel of land, and conducted a market analysis and a financial plan for construction and operation. Lane County, Oregon. 1987.

Prepared baseline employment and income sections for the socioeconomic element of an environmental impact statement for the proposed Chartam gold and silver mine. Private client. 1986-87.

Reviewed the adequacy and accuracy of a sensitivity analysis and an expected-utility analysis of proposed nuclear-waste repositories. Washington State Department of Ecology. 1986-87.

Supervised and managed studies on property in Beaverton and Tigard, Oregon, and identified the current and future needs for residentially related commercial land within the study areas. Cities of Beaverton and Tigard. 1986.

Analyzed the economic effects of proposed changes in the existing Forest Practices Rules for the State of Washington. Washington State Department of Natural Resources. 1986.

Performed a feasibility study for the creation of a 300-seat convention center at a beach resort in Lincoln City, Oregon. Private client. 1986.

Evaluated and proposed zone changes for the City of Troutdale based on an analysis of market conditions, land characteristics, the goals of the comprehensive plan, and the land owners' plans for current and future use of the property. City of Troutdale. 1986.

Analyzed the general economy, recommended strategies for improvement, and prepared a report summarizing the Forest Service's preliminary decision to retain its regional headquarters in Challis. North Custer Resource and Development Committee. 1985-86.

Evaluated cost information on landfills for solid waste to develop a computer model to calculate the economic value of environmental costs that accompany the construction, operation, and decommissioning of a landfill. Oregon Department of Environmental Quality. 1986.

Analyzed factors relevant to the feasibility of a sewage treatment plan. City of Keizer. 1985-86.

Analyzed the service sector in Portland, determined the strengths and weaknesses of a business location relative to other cities, and identified a target list of service-sector industries that would find Portland attractive. Portland Development Commission. 1986.

Provided an economic analysis associated with a proposed up-zoning of a site zoned for a neighborhood shopping center, based on consideration of existing land uses, existing zoning, and the current and expected needs of the community. Private client. 1985-86.

Assisted in the development of a comprehensive land-use plan and the writing of implementing ordinances, including analysis and forecasting of population, housing, employment, and economic development. City of Keizer. 1984-86.

Served as staff to the Citizen's Rate Advisory Committee and prepared the Committee's final report, recommending goals and policies for economic development. Emerald People's Utility District. 1985-86.

Advised the State of Idaho on management of the water resources of the Snake River Basin and the implementation of the Swan Falls Agreement. State of Idaho. 1985.

Evaluated a mixed-use zone in the Whiteaker neighborhood. City of Eugene. 1984-85.

Analyzed and forecasted the tourism market in Pacific Power and Light's service area. Private client. 1985.

Performed a feasibility analysis on the expansion of an existing 18-hole golf course to 27 holes. City of Portland. 1985.

Analyzed and forecasted the demand for column inches of advertising for a metropolitan newspaper, estimating the growth of new households and subscriptions. Private client. 1983-85.

Analyzed three new sources of tax revenues: taxing the gross receipts of parking, wholesale fuel distributors, and automobile sales dealers. Tri-County Metropolitan Transportation District. 1985.

Evaluated the methods used by the U.S. Department of Energy to rank potential sites for nuclear waste repositories. Washington State, Joint Legislative Committee on Science and Technology. 1985.

Analyzed the public uses and private-market demand for county property. Multnomah County. 1984-85.

Analyzed the cost of administering land-use changes and developed a system for setting fees that equitably allocates costs to applicants. Washington County. 1984-85.

Designed and supervised the administration of a survey of fishermen on the Swan River and other drainages to determine the value they place on recreational fishing. Montana Department of Fish, Wildlife, and Parks. 1983-84.

Evaluated the environmental effects from energy development projects, including the value of the external costs and benefits accompanying the development of coal-fired or combustion-turbine power plants. U.S. Department of Energy, Bonneville Power Administration. 1983-84.

Analyzed the economic, legal, and political implications of annexing a large tract of industrially zoned land to a city. City of Troutdale. 1983-84.

Reviewed and critically evaluated an economic analysis of lease rates for submerged and submersible land. Oregon Division of State Lands. 1983-84.

Established rates for future sewer services under a county's long-range capital development plan. Multnomah County. 1983.

Developed a method for evaluating which type of fringe benefits package would be most cost-effective considering both the demographic characteristics of the workforce and the institutional structure of the employer. City of Portland, Oregon. 1983.

Served as staff to the Citizen's Rate Advisory Committee and prepared the Committee's final report on a new rate structure for residential, commercial, and industrial customers. Emerald People's Utility District. 1983.

Evaluated a range of financing techniques to increase the conservation of energy among commercial users. City of Eugene. 1982-83.

Formulated the evaluation program for a HUD-funded grant used to provide low-interest loans to business for energy conservation measures. Lane County Housing Authority and Community Services Agency. 1982-83.

Prepared a financing plan for the Central County Service District and evaluated innovative financing mechanisms for funding the construction of a sewer system for East Multnomah County. Multnomah County. 1982-83.

Designated an economic development strategy for the City of Forest Grove. City of Forest Grove. 1982-83.

Reviewed the financial stability of one of an educational organization's member institutions, projected future revenues and expenditures, and made recommendations about the organization's continued funding of the institution. Private client. 1983.

Calculated the potential fiscal impacts of a proposed state lottery on the earnings of the Oregon Common School Fund. Oregon Division of State Lands. 1983.

Conducted a cost-benefit analysis of management options for mitigating the threat of flooding in the Toutle/Cowlitz watershed, which was damaged by the eruptions of Mt. St. Helens. Cowlitz County Department of Community Development. 1982-83.

Analyzed six prototypical neighborhoods to determine how the market would respond to new commercial zoning regulations. City of Seattle. 1982.

Forecasted the demand for coal in the Pacific Northwest, California, and Pacific Rim Countries, concentrating on the demand for steam and coal by electric utilities throughout the Western United States. Private client. 1980-82.

Analyzed the fiscal and economic impacts of alternative proposals for offering relief to firms holding contracts for state timber. Oregon Land Board. 1982.

Advised the City Manager on the implications of regional energy policies and helped the city develop appropriate responses to the regional policies. City of Eugene. 1981-82.

Analyzed the system of charges imposed on a city by the municipal utility for installing over-sized water mains to ensure adequate water service for fire protection. City of Eugene. 1981-82.

Evaluated policies to protect the water quality of the Rathdrum Prairie Aquifer from septic effluent resulting from indiscriminate development. Panhandle Health District, Kootenai County, Idaho. 1981-82.

Evaluated the past and current applications of economic theory to water resource management in the Columbia River Basin and assessed the effects of such policies on anadromous fish populations. U.S. Department of Energy, Bonneville Power Administration, Northwest Resources Information Center. 1981-82.

Developed socioeconomic criteria to measure direct and indirect benefits of hydroelectric projects. Montana Department of Natural Resources and Conservation. 1981-82.

Developed recommendations for the State of Montana concerning its use of investment funds for in-state economic development. Northern Rockies Action Group. 1981-82.

Predicted the demand for housing in downtown Portland using sources of housing statistics and a statewide econometric model. Portland Development Commission. 1981-82.

Developed a reliable model for predicting future trends in 18 non-wood manufacturing industries. Lane County. 1981.

Identified and evaluated an exhaustive list of methodologies for assessing the environmental costs and benefits of acquisitions. U.S. Department of Energy, Bonneville Power Administration. 1981.

Assessed changes in housing demand and supply for the area and simulated future changes for the period 1980-2000. West University Neighborhood of Eugene. 1981.

Researched and reported on the locational criteria of high-technology firms in the Eugene-Springfield area. City of Eugene. 1981.

Identified the transportation problems in the Vancouver, Washington-Portland, Oregon corridor, isolated their causes, recommended solutions and the institutional and financial arrangements for implementing the solutions. Bi-State Task Force (Cities of Portland and Vancouver, Counties of Multnomah and Clark, Metropolitan Service District, Oregon Department of Transportation, Washington Department of Transportation) and U.S. Department of Transportation. 1980-81.

Wrote the economic element of a draft environmental impact statement, which included assessments of the economic and land-use impacts of a proposed rapid transit system in the western Portland metropolitan area. Metropolitan Service District. 1981.

Described the fiscal impacts of proposed urban development on the county and ten special districts, and analyzed the financing mechanisms available to mitigate those impacts. Washington County. 1981.

Prepared a land-use, fiscal-impact, and feasibility analysis of a proposed light-rail system in Washington County, Oregon (in the Portland SMSA). Washington County, Metropolitan Service District, and U.S. Department of Transportation. 1980.

Developed a five-year fiscal action plan for Multnomah County, Oregon (in the Portland SMSA), including specifying and simulating the major alternative approaches available to the County for facing its fiscal problems. Multnomah County. 1980.

Specified and evaluated alternative programs for encouraging mixed-use districts. City of Eugene. 1980.

Assisted in devising and evaluating alternative policies of airshed management that accommodate anticipated future economic growth. Portland Interstate Air Quality Maintenance Area. 1979-80.

Analyzed the impacts of Montana's CETA program on its participants, developed models of the factors influencing the program's effectiveness, and trained the program's administrators in interpreting the models to improve the program. Montana Governor's Employment and Training Council, with a grant from the U.S. Department of Labor. 1979-80.

Prepared a grant application for a transit mall in Eugene under the Urban Initiatives Program of the U.S. Urban Mass Transit Administration. Lane Transit District, City of Eugene, Oregon. 1980.

Identified and evaluated the locational criteria of the high technology firms based in Santa Clara County, California. Private client. 1980.

Forecasted and evaluated the likely economic consequences of alternative air-quality strategies in the Portland interstate Air Quality Maintenance Area. City of Portland and U.S. Environmental Protection Agency. 1979-80.

Studied the likely increases in storm water run-off that would result from future urbanization and changes in land use in the Eugene-Springfield metropolitan area. U.S. Army Corps of Engineers.

Described and evaluated alternative programs for promoting downtown housing in a sample of four U.S. cities. City of Eugene. 1980.

Prepared a work program for a market analysis of Blair Neighborhood's commercial revitalization. City of Eugene. 1980.

Defined the objectives of the 19 Statewide Planning Goals, identified inconsistencies among them, and described a methodology for specifying and quantifying program objectives in a way which would allow them to be evaluated. Oregon Land Conservation and Development Commission. 1979-80.

Described and evaluated alternative growth-management programs in a sample of nine U.S. cities. City of Eugene. 1979-80.

Prepared a cost-revenue analysis of the acquisition of land surrounding Mahlon Sweet Airport for the purpose of minimizing land-use conflicts with the airport. Mahlon Sweet Airport and City of Eugene. 1979-80.

Developed a short- and long-run evaluative framework for the Oregon Coastal Management Program. Department of Land Conservation and Development. 1979.

Analyzed the potential for a large West-Coast construction firm to secure construction-management contracts for public-sector construction projects, and developed a marketing strategy for the firm. Private client. 1979.

Analyzed the feasibility of a proposed commercial-industrial park. Private client. 1979.

Surveyed and inventoried the commercial and recreational boat launching and moorage facilities in Oregon's estuaries and forecasted the future demand for such facilities. Oregon Department of Land Conservation and Development. 1979.

Analyzed the market for rental and multifamily housing in the central area of Eugene. Eugene Planning Department. 1978-79.

Developed forecasting models of demand for mineral aggregates for Oregon and for the market areas centered in Portland, Lincoln County, the Medford-Ashland metropolitan area, Umatilla County (Pendleton, Umatilla, and Boardman), Deschutes County (Bend), and the Willamette National Forest. Oregon Department of Geology and Mineral Industries and U.S. Army Corps of Engineers. 1978-79.

Analyzed Eugene's economy, with special emphasis on developing an economic management process for implementing the City's economic policies relating to industrial and commercial activity, land use, and the unemployed and economically disadvantaged. City of Eugene. 1978.

Analyzed housing markets, matching and forecasting housing prices and household incomes in the Eugene-Springfield metropolitan area. Private client. 1978.

Prepared a program for revitalizing the downtowns of Spooner and Medford, Wisconsin, as part of the American Institute of Architects' Regional/Urban Design Assistance Team. Wisconsin Northwest Regional Planning Commission and Upper Great Lakes Regional Commission. 1978.

Calculated the effects of the City of Beaverton's building moratorium on homebuilders and households in and around Beaverton, Oregon. Oregon State Homebuilders Association and Portland Metropolitan Homebuilders Association. 1978.

Prepared the economic elements for the comprehensive land-use plans of Lincoln County, Newport, Lincoln City, Toledo, Waldport, Siletz, and Depoe Bay. Lincoln County Planning Department, with a grant from the Oregon Department of Land Conservation and Development. 1978.

Described the nature and location of unemployment in Lane County. Lane Council of Governments. 1978.

Analyzed Eugene's housing markets by type, tenure, and location; and analyzed the underlying supply and demand conditions for residential land in Eugene, Springfield, and the balance of the metropolitan area. City of Eugene. 1978.

Identified the effects of Lane County's land-use and other regulations on the supply and costs of land and housing in Lane County and developed a system for monitoring, evaluating, and controlling these effects. Lane County Planning Division. 1977-78.

Evaluated the effectiveness with which the West Eugene Industrial Area could expect to accommodate future industrial activity, and recommended methods for revitalizing the area and for establishing a vehicle for economic development. City of Eugene. 1977-78.

Assessed the effect of Eugene's Urban Service Boundary and developed a system for monitoring, evaluating, and managing Eugene's growth. Eugene Planning Department. 1976-78.

Analyzed the single-family and multiple-family housing markets in Eugene, Oregon. City of Eugene. 1977.

Prepared a work program and evaluation of the Permit System Improvement Projects in Portland, Salem, Eugene, and the State of Oregon. Oregon Executive Department, with an intergovernmental grant from the U.S. Department of Housing and Urban Development. 1977.

Prepared the economic element for Marion County's Comprehensive Plan. Marion County Planning Department, with a grant from the Oregon Department of Land Conservation and Development. 1976-77.

Evaluated the performance of the employment and training programs for adults in Jackson and Josephine Counties, Oregon. Jackson-Josephine Job Council with a grant under Title I of the Comprehensive Employment and Training Act. 1977.

Developed a process to increase the efficiency of the local labor markets in Gilliam, Grant, Morrow, Umatilla, and Wheeler Counties, and evaluated the performance of the District 12 COG's Employment and Training Program. East Central Oregon Association of Counties, Oregon Employment Division, and U.S. Department of Labor. 1977.

Calculated current and forecasted future employment in Eugene, Springfield, and the balance of the metropolitan area, by sector and location, and analyzed the underlying supply and demand conditions for commercial and industrial land in Eugene. City of Eugene. 1977.

Analyzed the feasibility of the rehabilitation of the old St. Charles Hospital in Bend, Oregon. U.S. Department of Commerce, Economic Development Administration (Project No. 08-06-01776). 1976-77.

Evaluated the performance of the Greater Portland Convention Association and the Portland Chamber of Commerce, Convention Bureau, Portland, Oregon. Greater Portland Convention Association. 1976-77.

Analyzed the impact of zoning on land use in Portland, Oregon and forecasted the demand and supply conditions of industrial land. Portland Bureau of Planning and U.S. Department of Commerce, Economic Development Association. 1976.

Prepared work programs for a study of the economies of Linn, Benton and Lincoln Counties. Planning Departments of Linn, Benton, and Lincoln Counties, Oregon. 1976.

Performed a preliminary feasibility analysis of a residential, office, and retail development in Eugene. Private client. 1976.

Evaluated and reorganized Ashland's Comprehensive Plan; developed evaluative criteria for land-use planning in Ashland, Oregon. City of Ashland. 1976.

Performed a feasibility analysis of a 1200-room convention center in downtown Portland, Oregon. Convention Centers, Inc. 1975-76.

Evaluated the performance of the Youth Work Experience Program in Jackson and Josephine Counties, Oregon. Jackson-Josephine Job Council, with a grant under Title I of the Comprehensive Employment and Training Act. 1975-76.

Evaluated proposed comprehensive plans for the Camp Sherman Area and for Culver City in Jefferson County, Oregon. Planning Department of Jefferson County. 1976.

Analyzed the economic impact of a proposed K-Mart development on the Salem business community. Salem City Council. 1976.

Performed economic impact assessments on: geological hazards; fish and wildlife; beaches and dunes; agriculture, forest, urban; historical and archaeological; continental shelf resources; estuary and wetland resources; visual values; freshwater resources, shoreland resources; and general policies. Oregon Coastal Conservation and Development Commission. 1975.

## EXPERT TESTIMONY IN TRIAL

Provided testimony and calculated economic damages to patent holders of alleged patent infringement. Portland, Oregon: Schwabe, Williamson & Wyatt. 2008-2009.

Provided testimony that addressed the costs and benefits of a gasoline formulation that leaked from underground storage tanks and contaminated groundwater. ECO also described the costs and benefits of using an alternative gasoline formulation that did not pose such threats of contamination. New York, New York: New York City Law Department. 2005-2009.

Provided testimony and assessed the accuracy and value of a written document prepared by the plaintiff. Portland, Oregon: Mitchell, Lang & Smith. 2008.

Provided testimony regarding punitive damages in a case involving water contaminated with dry-cleaning chemicals. Sacramento, California: Miller, Axline & Sawyer. 2006.

Provided testimony and calculated the economic damages incurred by a homeowner whose trees were removed without his permission. Eugene, Oregon: Gaydos Churnside & Balthrop PC. 2005-2006.

Provided testimony and calculated the economic damages to a seafood-related business as a result of a license dispute with the State of Washington. Tacoma, Washington: Gordon, Thomas, Honeywell, Malanca, Peterson & Daheim, 2004-2005.

Provided testimony and analyzed the economic damages incurred by citizens of the State of Yap, in the Federated States of Micronesia, from a ship that grounded on the coral reef and spilled oil into the mangrove-reef ecosystem. San Francisco, California: Davis Wright Tremaine. 2003-2005.

Provided testimony and calculated lost wages and benefits in a wrongful discharge claim between a former employee and a hardwood-trading firm. Portland, Oregon: Dunn Carney Allen Higgins Tongue. 2004.

Provided testimony in a NAFTA arbitration matter in which the claimant sought damages arising from the State of California's ban on the use of MTBE as a gasoline oxygenate. Washington, D.C.: U.S. Department of State. 2003-2004.

Provided testimony and evaluated the relevant product and geography for hospital services in Oregon for claims of monopolistic behavior. Portland, Oregon: Schwabe, Williamson & Wyatt. 2002-2003.

Provided telephone testimony and evaluated the U.S. market for suspension systems for bicycles. Portland, Oregon: Schwabe, Williamson & Wyatt. 2002-2003.

Provided testimony for the State of Oregon and analyzed the economic damages to the Oregon coast resulting from an abandoned section of the *New Carissa* shipwreck. Salem, Oregon: Oregon Department of Justice; Eugene, Oregon: Jaqua and Wheatley. 2002.

Provided testimony on, analyzed, and critiqued the defendant's claims of damages in a dispute concerning a rental agreement for city-owned commercial property. Eugene, Oregon: Harrang, Long, Gary, Rudnick. 2002.

Provided testimony and evaluated the economic impacts to municipalities in Alaska of the oil spilled from the Exxon Valdez. Portland, Oregon: Stoll, Stoll, Berne, Lokting, Shlachter. 2000-2002.

Provided economic analysis and testimony for the South Tahoe Public Utility District comparing the costs and benefits associated with using MTBE, ethanol, or alkylates in reformulated gasoline in California. Sacramento, California: Miller, Sher & Sawyer. 1999-2002.

Researched the literature, evaluated the economic basis for antitrust claims in a franchise setting, and provided expert testimony to an arbitration panel evaluating antitrust and tying claims related to the cedar home market. Seattle, Washington: Cutler & Nylander. 2000-2001.

Provided analysis and testimony regarding the economic impacts suffered by an oyster grower as a result of the grounding of the New Carissa. San Francisco, California: Davis Wright Tremaine. 2000-2001.

Provided economic analysis and testimony regarding the economic damages to an irrigator resulting from sewage pollution in the South Umpqua River. Roseburg, Oregon: Dole, Coalwell, Clark, Mountainspring & Mornarich. 1998.

Provided economic analysis and testimony regarding the hiring and pay for head coaches at Oregon State University and calculated economic loss from gender-based hiring. Eugene, Oregon: Walters, Romm, Chanti, & Dickens. 1997.

Provided economic analysis and testimony regarding the lost profits from a patent infringement of an orbital sander by conducting surveys and econometric analysis. Portland, Oregon: Kolisch, Hartwell, Dickinson & McCormack. 1995-1997.

Provided economic analysis and testimony regarding uncompensated expenses and lost profits in a contract dispute between a manufacturer of video lottery terminals and the Oregon State Lottery. Portland, Oregon: Davis, Wright, Tremaine. 1996.

Provided economic analysis and testimony regarding the catalytic converter and recycling industries and calculated damages for the defendant. Eugene, Oregon: Luvaas, Cobb, Richards & Fraser. 1995-1996.

Provided economic testimony regarding antitrust liability and damages related to the wholesale markets for televisions. Portland, Oregon: Schwabe, Williamson, Wyatt. 1995.

Testified regarding damages to a rose nursery from actions by a natural-gas utility. Eugene, Oregon: Luvaas, Cobb, Richards, and Fraser. 1995.

Provided expert testimony regarding economic damages due to antitrust activity in the retail and wholesale markets for petroleum products. Anchorage, Alaska: Condon, Partnow & Sharrock. 1994-1995.

Provided economic analysis of and testimony on issues relating to relevant product and geography, the extent of power in the market for recreation equipment, and damages. Boise, Idaho: Clemons, Cosho and Humphrey. 1988-1992.

Provided testimony regarding whether a property-purchase-leaseback partnership was organized solely to generate reduced taxes, rather than economic profit for the partners. Oregon Department of Justice. 1991.

Provided economic analysis and testimony regarding price discrimination and tied houses in the alcoholic beverage industry. Portland, Oregon: Schwabe, Williamson, Wyatt, Moore, and Roberts. 1987-1988.

Provided analysis and testimony on the value of eight properties of real estate. Portland, Oregon: Hanna, Urbrikeit, Jensen, Goyak, and O'Connell. 1987-1988.

Provided analysis and testimony regarding the damages associated with alleged patent infringement. Portland, Oregon: Schwabe, Williamson, Wyatt, Moore, and Roberts. 1987.

Provided regulatory policy analysis and testimony regarding irrigation rate-discounts and the adverse economic impact of higher electrical rates. Private client. 1987.

Provided analysis and testimony regarding the economy of Lincoln County for the years 1970-1986, with special emphasis on the variables of non-agricultural wage and salary employment, covered payrolls, restaurant and hotel payrolls, and total assessed true cash value. Lincoln City, Oregon: Lovejoy and Green. 1987.

Provided economic analysis and testimony regarding the economy of Oregon and the auto industry in the early 1980s. Eugene, Oregon: Swanson and Walters. 1987.

Provided economic analysis and testimony for a private utility regarding economic principles for efficient pricing of electricity sold to regulated utilities by independent producers. Boise, Idaho: Runft, Leroy, Stecher, Coffin, and Mathews. 1985-1986.

Provided economic analysis and testimony regarding a newspaper's alleged violation of antitrust laws with respect to the market for local printed advertising. Portland, Oregon: Gordon, Thomas, Honeywell, Malanca, Peterson, and Daheim. 1985.

Testified in a franchise dispute for Richard Fredricks, owner of Subaru, in Multnomah County Circuit Court. Palm Desert, California: Richard Houghton. 1983.

Also testified in personal-injury and wrongful-death cases.

## OTHER EXPERT ANALYSIS FOR LITIGATION

Analyzed alleged anticompetitive behavior, if any, in the market for diagnostic imaging services in the Reno area. Reno, Nevada: Robison, Belaustegui, Sharp & Low. 2009.

Evaluated DNR's decision not to quantify monetary values associated with Blanchard forest. Seattle, Washington: Toby Thaler. 2008-ongoing.

Analyzed economic factors relevant to setting market-rate royalties associated with an aggregate mine. Portland, Oregon: Stoel Rives LLP. 2007-ongoing.

Evaluated damages to the County associated with loss of use of contaminated property. Chicago, Illinois. Bollinger, Ruberry & Garvey. 2007-2009.

Analyzed a construction company's ability to pay civil penalties associated with alleged violations of air-quality regulations. Sacramento, California: California Attorney General. 2007-2008

Portland, Oregon: Foster Pepper LLP. 2007-2008.

Studied the market for MRI services in the Boise area and assessed alleged anticompetitive behavior in this market. Boise, Idaho: Greener, Banducci, Shoemaker. 2006-ongoing.

Analyzed the economic issues of class certification and damage calculations related to alleged antitrust violations in the market for residential lots in the Boise, Idaho area. Seattle, Washington: Hagens Berman Sobol Shapiro LLP. 2006-ongoing.

Analyzed the fuel ethanol market to determine if refiners could have used ethanol instead of MTBE to meet federal reformulated-gasoline mandates during the 1990s. San Francisco, California: Sher Leff; et al. 2005-ongoing.

Calculated the economic damages suffered by a private water utility from MTBE contamination in its drinking-water wells. San Francisco, California: Sher Leff. Dallas, Texas: Baron & Budd. 2006-2008.

Calculated present value of economic damages to Hawaiian water utility from contaminated groundwater. San Francisco, California: Sher Leff, LLP. 2007.

Analyzed the operations and financial performance of a timber company's cogeneration facilities. Calculated the profits earned by the company as a result of unfair competition stemming from violations of air-quality regulations. Sacramento, California: Office of the Attorney General, State of California. 2005-2007.

Analyzed the market for diagnostic-imaging services in the Portland-metro area. Portland, Oregon: Haglund, Kirtley, Kelley, Horngren & Jones. 2005-2006.

Calculated the economic loss associated with lost wages, lost household services, and additional costs caused by the wrongful death of a mother. Private client. 2005-2006

Addressed the economic issues regarding the plaintiffs' challenge to a city's franchise-fee agreements for use of the city-owned right-of-way. Portland, Oregon: City Attorney's Office. 2005-2006.

Provided a declaration in support of the fee that a city charges to access the municipal right-of-way. Portland, Oregon: City Attorney's Office. 2004-2005.

Analyzed the potential violation of trade secrets. Portland, Oregon: Schwabe, Williamson & Wyatt. 2005-2006.

Calculated the economic loss related to several wrongful deaths and injuries, suffered primarily by college students. Portland, Oregon: Private client. 2005.

Performed statistical analysis to identify members of a proposed class of plaintiffs and the amount of the aggregate class damages from the failure of an insurance company to compensate policyholders for the actual cash value of the sales tax paid on lost property. Seattle, Washington: Stritmatter Kessler Whelan Withey Coluccio. 2005.

Reviewed and critiqued the opposing expert's analysis in a wrongful discharge case. Portland, Oregon: Mersereau & Shannon. 2004-2005.

Studied the economic performance of the ski industry in the Lake Tahoe area and the market conditions that affect this sector of the region's economy. California: California Office of the Attorney General. 2003-2005.

Reviewed economic analyses, prepared by the U.S. Department of Agriculture and the U.S. Environmental Protection Agency, of the potential economic impacts of court-ordered restrictions on the use of pesticides near salmon-bearing streams in the Pacific Northwest. Seattle, Washington: Earthjustice. 2004.

Provided a declaration of opinion concerning the adequacy of financial information. Seattle, Washington: Bricklin Newman Dold. 2004.

Reviewed economic issues specific to the Telecommunications Act of 1996 regarding the fees that the City of Huntsville charges telecommunications firms to use its right-of-way. Huntsville, Alabama: Fees & Burgess. 2003.

Analyzed the economic damage to homeowners in Idaho due to hazardous waste pollution from mining and mineral processing activities. Seattle, Washington: Hagens & Berman. 2002-2004.

Studied allegations of price-fixing in markets for agricultural commodities. Portland, Oregon: Tonkon Torp. 1997-2004.

Analyzed the royalty rate that the holders of a process patent could expect to receive in a licensing arrangement. Portland, Oregon: Schwabe, Williamson & Wyatt. 2002-2004.

Evaluated right-of-way fees that a telecommunications company challenged in litigation in reference to certain provisions of the Telecommunications Act of 1996. Washington, D.C.: Miller & Van Eaton. 2002-2004.

Provided analysis regarding the economic impacts of a proposed aggregate mining operation on surrounding farms. Portland, Oregon: Garvey Schubert Barer. 2004.

Studied the economic aspects of defining a hospital's service area as it applied to Oregon's Certificate-of-Need requirement for new or relocated hospitals. Private client. 2003.

Analyzed the fees that a city charged a telecommunications company to access the city-owned right-of-way. San Diego, California: Best Best & Krieger. 2003.

Evaluated the pricing structure that local governments charge providers of cable modem services for using the local right-of-way and addressed the economic relevance of revenue-based fees in a congested right-of-way. Washington, D.C.: Miller & Van Eaton. 2002-2003.

Analyzed the statistical differences between groups of employment-related injury settlements. Seattle, Washington: Hagens & Berman. 2002-2004.

Studies the market for home intravenous care in preparation for a possible antitrust lawsuit. Private client. 2002.

Provided economic consultation on the market for health-care services in Oregon. Portland, Oregon: Schwabe, Williamson, & Wyatt. 2000-2002.

Provided economic analysis regarding the economic value of municipal rights-of-way and the use of the rights-of-way by telecommunications companies. Portland, Oregon: City of Portland Attorney's Office. 2001-2002.

Provided economic analysis of a patent-infringement claim regarding suspension systems for bicycles. Portland, Oregon: Schwabe, Williamson, & Wyatt. 2001-2002.

Evaluated the relevant product and relevant geography for hospital services in Oregon and analyzed economic damage claims. Portland, Oregon: Schwabe, Williamson, & Wyatt. 2000-2002.

Provided an economic analysis of the U.S. market for cookie stamps. Portland, Oregon: Schwabe, Williamson, & Wyatt. 2001.

Assessed the economic impacts of restricting a forest clearcut in the Carbon River Corridor Entrance to Mount Rainier National Park. Seattle, Washington: Washington Forest Law Center. 2000-2001.

Calculated the costs of a potential fuel spill at the mouth of the Columbia River. Portland, Oregon: Haglund, Kirtley, Kelley & Horngren. 2000-2001.

Determined the appropriate sample size required to confirm key characteristics about CEC's phone pole population. Bend, Oregon: Karnopp, Petersen, Noteboom, Hansen, Arnett & Sayeg. 2000.

Evaluated the likely effects of certain labor practices on the working conditions of workers in the reforestation industry. Eugene, Oregon: Oregon Law Center. 1999-2001.

Assessed the socioeconomic impacts of a proposed petroleum-products pipeline across central Texas. Private client. 1999-2001.

Analyzed the economic impacts of unauthorized construction activity that damaged a pueblo in New Mexico. Private client. 1999-2000.

Studied the economic status of bands of Native Americans. Private client. 1999.

Determined the damages caused by two competitors who infringed on a patent for an invention used in the alarm and security industry. Portland, Oregon: Stoel Rives LLP. 1999.

Evaluated the economic impacts of the proposed Cross-Cascade Pipeline on businesses, grain producers, and consumers. Portland, Oregon: Schwabe, Williamson & Wyatt. 1999.

Calculated the damages in an employment discrimination suit. Portland, Oregon: Gordon Thomas Honeywell. 1998.

Studied factors associated with teen smoking, including price elasticities, research and development expenditures by tobacco companies, and profits generated from cigarette consumption by underaged smokers. Hagens & Berman (Washington and Arizona) and Golub Silver (Connecticut). 1997-1998.

Calculated damages to commercial fishermen, seafood wholesalers/processors, hotels, and small businesses associated with a 1990 oil spill off Huntington Beach, California. Los Angeles, California: Gretchen Nelson. 1997-2000

Analyzed economic loss suffered as a result of injury. Jamin, Ebell, Schmitt, & Mason. 1997-1998.

Evaluated unfair trade practices in the market for computer software. Eugene, Oregon: Butler, Burgott, Leslie & Stine. 1997-1998.

Calculated economic damages for a class action law suit against an insurance company that retroactively denied coverage to accident victims many months after they had received costly treatment. Seattle, Washington: Hagens & Berman. 1996-1997.

Calculated economic damages resulting from a breach of the 1991 Manufacturing Agreement and misappropriation of intellectual property, trade secrets, and manufacturing tooling of VSI crusher parts. Portland, Oregon: Schwabe, Williamson & Wyatt. 1995-1997.

Analyzed the economic well-being of seven bands of Chippewa in Minnesota and Wisconsin. Minnesota Attorney General's Office and Department of Natural Resources. 1995-1997.

Analyzed lost profits resulting from the improper implementation of a new area code by conducting a telephone survey of affected firms. Seattle, Washington: Hagens and Berman. 1996.

Developed and administered a survey of auto parts salespersons to calculate hours of uncompensated overtime and the value of lost wages. Eugene, Oregon: Hoag, Garrettson, Goldberg & Fenrich. 1995-1997.

Analyzed the relevant product and geographic markets for video superstores. Portland, Oregon: Davis, Wright, Tremaine. 1995-1996.

Analyzed the economic costs and benefits of differential tax treatment between in-state and out-of-state insurance companies by the State of Oregon. Eugene, Oregon: Harrang Long. 1995.

Analyzed emissions of $CO_2$, mercury, fine particles, and other air contaminants associated with electricity generation. Chicago, Illinois. Environmental Law and Policy Center. 1995.

Identified the relevant geographic market for retail electronics for the 1970s and 1980s in Oregon. Portland, Oregon: Tonkon, Torp, Galen, Marmaduke & Booth. 1995.

Described the relevant product market for lumber mill equipment in the U.S. and Canada, Portland, Oregon: Kolisch, Hartwell, Dickinson, McCormack & Heuser. 1994-95.

Addressed the shortcomings of the economic analysis in the Spotted Owl Final Supplemental Environmental Impact Statement and the economic consequences of adopting a forest management plan based on an incomplete and inaccurate economic analysis. Seattle, Washington: Sierra Club Legal Defense Fund. 1994.

Provided expert analysis on class certification and economic damages for businesses and property owners affected by airborne toxic pollutants. Seattle, Washington: Riddell, Williams, Bullitt & Walkinshaw. 1993-1995.

Provided expert analysis regarding the value of damages to municipalities suffered as a result of the Exxon Valdez oil spill and cleanup. Kodiak, Alaska: Jamin, Ebell, Bolger & Gentry. 1990-94.

Provided expert testimony on class certification and conducted economic analyses for area businesses and property owners affected by a toxic spill in the Sacramento River. San Francisco, California: Lieff, Cabraser & Heimann. 1992-94.

Analyzed the economic impacts of a chemical spill on municipal governments. Private client. 1993

Provided expert analysis related to class certification and damages to property values from airport noise. Seattle, Washington: Hagens and Berman. 1992-1993.

Constructed a hedonic price model of the market for vacant commercial and industrial land in King County, Washington. Seattle, Washington: Betts, Patterson & Mines. 1992-93.

Analyzed the market for group dental insurance in Oregon and evaluated claims of antitrust liabilities and damages. Portland, Oregon: Schwabe Williamson. 1992-93.

Provided economic analysis of issues relating to relevant product market and relevant geographic market for neonatal-prenatal medicine. Eugene, Oregon: Calkins and Calkins. 1989-92.

Assessed the extent to which the Bureau of Land Management failed to satisfy the economic requirements for an exemption to the Endangered Species Act in its proposal to log timber in habitat for the northern spotted owl. Portland, Oregon: U.S. Fish and Wildlife Service. 1991-92.

Determined the extent to which the behavior of an association of river pilots operating under the provisions of an association of a state regulatory authority constituted an antitrust violation. Portland, Oregon: Haglund and Kirtley. 1991-92.

Evaluated and recommended actions for improving the analysis underlying Washington's system for determining child-support payments. Seattle, Washington: Betts, Patterson & Mines. 1991.

Provided expert analysis regarding the economic impacts of certain injunctions on U.S. Forest Service timber sales in Washington, Oregon, and northern California. Seattle, Washington: Sierra Club Legal Defense Fund. 1991.

Assessed the feasibility of a public agency's plan to condemn property and construct a hotel, thereby displacing planned private-sector development of a smaller hotel on the same site. Portland, Oregon: Pfister and Tripp. 1991.

Valued damages resulting from patent infringement by a competitor of a manufacturer of agricultural equipment who also made and sold similar, non-infringing equipment. Portland, Oregon: Schwabe, Williamson and Wyatt. 1991.

Analyzed the demand for recreational fishing in the Flathead Lake region in a dispute over the state's authority to regulate fish and game on an Indian reservation. Helena, Montana: Montana Attorney General's Office. 1990.

Provided economic analysis, with specific emphasis on the issues of relevant market, barriers to entry, and competition, of the market for maraschino cherries. Portland, Oregon: Tonkon, Torp, Galen, Marmaduke & Booth. 1990.

Described the importance of the apple industry to Chelan County, Washington and assessed the likelihood that randomly selected jurors would have a direct or indirect financial interest in the apple industry. Hoquiam, Washington: Stritmatter, Kessler and McCauley. 1989.

Provided economic analysis of the savings proposed by a private corporation to the Defense Logistics Agency. Boise, Idaho: Runft, Leroy, Coffin, and Mathews. 1985-1988.

Provided economic analysis regarding claims that a natural gas pipeline corporation violated antitrust laws in its interpretation and application of pipeline deregulation rules of the Federal Energy Regulatory Commission. Salt Lake City, Utah: Watkiss & Campbell. 1988.

Provided economic analysis regarding a claim by a roller-bearing manufacturer that a rock-crusher manufacturer violated antitrust laws by attempting to restrict after market sales of replacement roller bearings to crusher users. Pittsburgh, Pennsylvania: Springer, Bush, & Perry. 1988.

Provided economic analysis regarding a claim that the sale of television rights for professional bowling violated antitrust laws. Seattle, Washington: Hansen, Robinett & Krider. 1988.

Analyzed the economic impacts of a hostile takeover of Farmers Insurance by the British American Tobacco Company. Portland, Oregon: Lindsay, Hart, Neil, & Weigler. 1988.

Provided economic analysis for a school board during labor negotiations. Eugene, Oregon: 4J School District. 1987.

Reviewed the plaintiffs' appraisal of damages resulting from breach of contract for appropriateness of method and amount. Bend, Oregon: McCord & Haslinger, 1986.

Analyzed the present discounted value of damages incurred by a private corporation under an alleged restrictive settlement. Eugene, Oregon: Perrin, Gartland & Doyle. 1984-86.

Provided economic analysis regarding a claim that a manufacturer of Mexican coffee liqueurs exercised monopoly power to exclude or restrict competition in the market. Schwabe, Williamson, Wyatt, Moore & Roberts. 1985-86.

Provided economic analysis of the present discounted value of alleged damages sustained by Chrysler Corporation resulting from the action of two franchises. Seattle, Washington: Betts, Patterson, and Mines. 1986.

Assisted in labor arbitration with corrections officers. Multnomah County. 1985-86.

Provided economic analysis regarding an alleged restraint of trade for the sale and transportation of fly ash. Stoel, Rives, Boley, Fraser & Wyse. 1985-86.

Provided economic analysis regarding real estate markets and financial conditions in Ada County and the City of Boise. Boise, Idaho: Clemons, Cosho, and Humphrey. 1985.

Assessed the impact of the City of Ketchum's annexation of the Northwood Subdivision on the Ketchum Springs Water Supply Company's revenues, rate base, capital structure, customers, and stockholders. Private client. 1984-85.

Provided economic analysis regarding a claim that a video-game manufacturer violated antitrust laws with respect to the distributorship of video games. Seattle, Washington: Betts, Patterson, and Mines. 1985.

Analyzed the disparities between procedures for determining taxable value for residential properties and those for commercial and industrial properties. Montana Department of Revenue. 1983-84.

Provided economic analysis regarding a claim that the members of a medical clinic violated antitrust laws by using the peer-review process to restrict a competing surgeon's hospital privileges. Astoria, Oregon: Tonkon, Torp, Galen, Marmaduke & Booth. 1984.

Provided economic analysis and calculation of damages regarding a newspaper's alleged violation of antitrust laws with respect to the market for local printed advertising. Boise, Idaho: Risch, Goss, Insinger, and Sallady. 1984.

Provided a condemnation appraisal. Oregon Department of Justice. 1984.

Provided analysis regarding damages from the loss of a lease and additional travel costs when the defendant failed to vacate a space as promised. King County, Washington: Betts, Patterson, and Mines. 1984.

Provided business valuation for John McInnis and Rhodes Big O Tires, Inc. Mountain Home, Idaho: Hall & Friendly and McMurtrey & Company. 1984.

Provided business valuation representing Robert Hammons & Associates in U.S. District Court. Idaho: Stephen, Slavin, Kvanvig & Stephan. 1983.

## OTHER EXPERT TESTIMONY

Testified at a hearing and provided written testimony describing the economic consequences of increasing market concentration in the market for acute-care hospital services. Springfield, Oregon: Thorp Purdy Jewett Urness & Wilkinson. 2005.

Testified at a hearing before Polk County's (Oregon) Board of Commissioners regarding the economic benefits of protecting the quality of a community's groundwater resources. Hillsboro, Oregon: David Noren, Attorney at Law. 2004-2005.

Testified at a hearing before Oregon's Attorney General regarding the proposed merger of McKenzie-Willamette Hospital and Triad Corporation. Springfield, Oregon: Thorp Purdy Jewett Urness & Wilkinson. 2003.

Presented oral testimony (via telephone) to the Oregon Senate Economic and Job Stimulus Committee regarding an overview of Oregon's economy. 2001.

Prepared a declaration on the economic issues of critical habitat designation for endangered salmon. Seattle, Washington: Earthjustice Legal Defense Fund. 2001-2002.

Provided economic analysis and testimony regarding the economic impacts of a proposed sand-and-gravel mine on surrounding farms. Private client. 2000-2002.

Evaluated the economic impacts of bypassing four federal dams on the Lower Snake River, developed a plan to mitigate the negative consequences of the bypass, and testified on these topics in a joint hearing before the House Subcommittee on Fisheries Conservation, Wildlife and Oceans, and the Subcommittee on Water and Power. Portland, Oregon: Trout Unlimited and Earthjustice Legal Defense Fund. 1999.

Testified before the Washington Shorelines Hearing Board regarding how locating a large retail shopping center on industrial land would affect neighboring industrial uses. Seattle, Washington: David C. Hall. 1996.

Provided oral testimony at an antitrust immunity hearing regarding a petition seeking antitrust immunity for a proposal to integrate healthcare providers. Vancouver, Washington: Reed McClure. 1995.

Testified before the Portland City Council regarding the proposed location of a Costco retail store in the Industrial Sanctuary of Portland, Oregon. Portland, Oregon: Kell, Alterman. 1995.

Testified on the economic impacts of proposed reforms to the Mining Law of 1872 before U.S. Senate Subcommittee on Forests and Public Land Management, Committee on Energy and Natural Resources. Washington, D.C.: Mineral Policy Center. 1995.

Testified regarding the Southeast Alaska Jobs and Communities Protection Act of 1995 before the U.S. Senate Committee on Energy and Natural Resources. Washington, D.C.: Sierra Club Legal Defense Fund and Alaska Rainforest Campaign. 1995.

Testified on the impacts of reduced timber harvest in the Tongass National Forest on the economy of southeast. Anchorage, Alaska: Alaska Sierra Club Legal Defense Fund. 1994-1995.

Testified before the New Mexico Horizons Task Force on strategic thinking in Oregon and Utah. Santa Fe, New Mexico. 1994.

Testified before the U.S. House of Representatives Committee on Natural Resources on the changing needs of the West. Salt Lake City, Utah. 1994.

Testified on the northern spotted owl and the timber industry in the Pacific Northwest before the U.S. Senate Committee on Environment and Public Works, Subcommittee on Environmental Protection. Washington, D.C.: U.S. Senate Committee on Environment and

Public Works. 1992. Provided analysis and testimony to the Oregon State Legislative Joint Committee on Forest Products and developed a strategic plan for allocating state resources to assist dislocated workers and timber-dependent communities. Salem, Oregon. 1990.

Provided analysis and testimony to the Oregon Legislature regarding a proposal to implement comprehensive effluent fees for air pollution. Salem, Oregon: Oregon Environmental Council. 1990.

Testified before the U.S. House of Representatives Subcommittee on Regulation and Small Business Opportunities regarding the viability of flexible manufacturing networks. Washington, DC: U.S. House of Representatives Committee on Small Business. 1988.

Testified before the Portland City Council regarding the proposed location of a Fred Meyer shopping center. Portland, Oregon: Sullivan, Josselson, Roberts, Johnson & Kloos. 1985-86.

Testified before the Idaho Public Utility Commission regarding appropriate methodologies for deregulating the electricity-generating industry and for determining the fair-market value of electricity produced by cogenerators and small power producers. Boise, Idaho: Lindsay, Hart, Neil & Weigler. 1985.

Determined the competitive wages necessary to attract and retain police and firefighters, and testified at arbitration hearings between the City of Portland and the Public Employees' Union. Portland, Oregon: City of Portland. 1984-85.

Provided regulatory policy analysis representing Hy-Tech Corporation in a rate hearing before the Idaho Public Utility Commission. Boise, Idaho: Runft, Leroy, Coffin & Mathews. 1984.

## STATE, REGIONAL, AND NATIONAL PRESENTATIONS AND CONFERENCES

“Economic Growth, the Environment and Sustainability.” Remarks to the Oregon House Committee on Sustainability and Economic Development. January 2009.

“The Societal Costs and Benefits of Misallocating Water and Gasoline Additives.” Universities Council on Water Resources Conference. July 2004.

“The Economic Importance of Ecosystem Services.” Universities Council on Water Resources Conference. July 2004.

“The Economic Importance of Ecosystem Services.” AWRA Summer Specialty Conference. June 2004.

“The Societal Costs and Benefits of MTBE as a Gasoline Additive in California.” Presenter, NGWA Conference on MTBE, Assessment, Remediation, and Public Policy. June 2003.

“Paying Mother Nature.” Speaker, 2003 American Planning Association National Planning Conference. Denver, Colorado. April 2003.

“The Economics of Dam Removal on the Lower Snake River.” Presenter, Economic Value of Environmental Resources Conference. Chico, California. April 2003.

"Challenges to Economic Security." Panelist, Pacific Northwest Regional Economic Conference. Portland, Oregon. May 2002.

"Economic Valuation and the Watershed." Speaker, Watershed Partnerships Seminar. U.S. Office of Personnel Management, Western Management Development Center. Denver, Colorado. September, June, and March 2001, November and July 2000, November and March 1999, and October and June 1998.

"Economic Alternatives in the Willamette River Basin." Keynote speaker, Willamette River Watershed Conference. Sponsored by: Oregon Chapters of the American Institute and American Water Resources Association. Vancouver, Washington. April 2001.

"Economics, Salmon and the Pacific Northwest." Coordinator and presenter, Salmon/Water Workshop. Participants: ECONorthwest, Earthjustice, American Rivers, The Center for Environmental Law & Policy, Trout Unlimited, and Columbia River Inter-Tribal Fish Commission. Portland, Oregon. March 2001.

"Competition Matters: An Economist's Perspective of Collaborations and the National Forests." Speaker, University of Montana School of Forestry, Plum Creek Lectures. January 2001.

"The New West: Changing Demographics, Economics, and Perceptions." Speaker, Washington State Trust Lands Conference. Seattle, Washington. November 2000.

"Economic Benefits of Parks and Recreation." Speaker, 2000 Oregon Recreation & Park Association Annual Conference. Welches, Oregon. October 2000.

"Hidden and Ignored Economic Costs in Natural Resource Decision Making." Speaker, NEPA/ESA Conference 2000. Austin, Texas. September 2000.

"Regional Economic Impact Analysis." Speaker/Facilitator, Workshop on Estimating the Economic Values and Impacts of Water-Resources Projects in the Mississippi River Basin. Memphis, Tennessee. September 2000.

"Application of Economic and Related Policy Information to Prioritize Riparian Restoration of the Willamette River, Oregon." Speaker, AWRA International Conference on Riparian Ecology and Management in Multi-Land Use Watersheds. Portland, Oregon. August 2000.

"Both Sides of the River: Salmon Recovery in the Columbia Basin." Panel participant, Searching for a Preferred Alternative. Eastern Washington University. Spokane, Washington. June 2000.

"The Challenge of Healthy Communities," Keynote speaker, EPA Region 10 (Alaska, Washington, Oregon, Idaho) Office of Ecosystems and Communities. Seattle, Washington. May 2000

"Beyond 2000: Regional, Border, and Global Issues for the Pacific Northwest." Panel participant, Protection of Salmon and Other Environmental Issues. Western Washington University: Pacific Northwest Regional Economic Conference. Bellingham, Washington. April 2000.

"The Economic Consequences of Watershed Management: Values, Impacts, and Equity." Speaker, Second Annual Wetland Workshop. U.S. Bureau of Reclamation, Great Plains Region. Estes Park, Colorado. October 1999.

"Benefits and Mechanisms for Spreading Asset Ownership in the United States." Invited participant, The Ford Foundation Conference. New York, New York. May 1999.

"Economic Changes in the Pacific Northwest." Panel participant, Pacific Northwest Conference on Environmental and Resource Economics. Eugene, Oregon. May 1999.

"The Economic Consequences of Watershed Management: Values, Impacts, and Equity." Sustaining the Missouri River for Future Generations. Pierre, South Dakota. March 1999.

"The Ecosystem-Economy Relationship: Insights from Six Forested LTER Sites." Speaker, LTER Conference on Linking Natural and Socioeconomic Processes. Madison, Wisconsin. October 1998.

“Making Decisions When Everything Matters.” Speaker, National Wilderness Conference. Seattle, Washington. May 1998.

"Designing a Report Card on the Health of the Nation’s Ecosystems." Panelist, The H. John Heinz III Center for Science, Economics and the Environment. Washington, D.C. February 1998.

“Making Decisions When Everything Matters.” Speaker, Oregon Chapter American Fisheries Society Annual Meeting. Population, Economics, and Ecosystems: Is Sustainability Attainable? Sunriver, Oregon. February 1998.

Participant, EPA/NSF Partnership for Environmental Research: Water and Watersheds STAR Grants Program Review Meeting. Corvallis, Oregon. January 1998.

“The Effects of Measure 47.” Speaker, Oregon Speech-Language and Hearing Association’s Fall Conference. Bend, Oregon. October 1997.

“How Can Researchers and the EPA Work Together to Improve Benefit/Cost Analysis?” Speaker, EPA Deputy Administrator’s Environmental Economics Forum. Cambridge, Massachusetts. September 1997.

“The Economic Effects of Ecosystem Management.” Paper presented at the Western Economic Association International Conference. Seattle, Washington. July 1997.

“Tracing the Economic Roots of Wetlands Restoration.” Presenter, Pacific Northwest Chapter of Wetland Scientists and Society for Ecological Restoration. Corvallis, Oregon. May 1997.

“The Pacific Northwest Economy: Transitions from Brown to Green.” Panel moderator, Pacific Northwest Regional Economic Conference. Spokane, Washington. April 1997.

Speaker, Oregon Department of Environmental Quality's Orphan Site Task Force. Portland, Oregon. January 1996.

“The Evolution of the Pacific Northwest’s Regional Economy.” Speaker, Carroll College. Helena, Montana. January 1996.

"Making Decisions When Everything Matters." Speaker, Washington Department of Ecology Director's Choice Forum. Seattle, Washington. September 1995.

"Marketing of Indian Water Rights." Speaker, Western States Water Council's Symposium on the Settlement of Indian Water Rights' Claims. Portland, Oregon. September 1995.

"Making Use of Experts When Litigating Disasters." Oregon Bar Association's 1995 Annual Meeting. Litigating Environmental Disasters: Lessons Learned Litigating the Exxon Valdez Oil Spill Case. Seaside, Oregon. September 1995.

“The Changing Northwest Economy.” Speaker, Pacific Rivers Council Northwest Economic Conference. July 1995.

Invited Speaker, President Clinton's Pacific Rim Regional Economic Conference. Little Rock, Arkansas. June 1995.

"Incentives and Subsidies: Water and Energy Use in the Columbia Basin." Speaker, Northwest Water Law and Policy Project on Water Policy and Sustainability in the Columbia River Basin. Lewis and Clark Law School. May 19, 1995.

"The Two Oregons Debate: Timber vs. High-Tech." Speaker, City Club of Portland. Portland, Oregon. April 14, 1995.

"Creating Community for Quality Education." Speaker, Confederation of Oregon School Administrators. Portland, Oregon. March 6, 1995.

"Economic Forecast for 1995." Speaker, City Club of Portland. Portland, Oregon. January 6, 1995.

"Northwest Environmental Economics." Speaker, Oregon Chapter of the American Society of Landscape Architects; USDA Forest Service, Mt. Hood National Forest Landscape Architects; and University of Oregon, Landscape Architecture Department's Conference on Sustainable Future. Beaverton, Oregon. October 28, 1994.

"Managing the Northern Forests: Other Lessons from the West." Panelist, Vermont Law School's Symposium on the Northern Forest Lands and the Law. South Royalton, Vermont. September 30, 1994.

"The Use of Economic Information in Decisionmaking and Economic Benefits of Spotted Owl Rules." Speaker, Washington Department of Natural Resources, Forest Practices Board Meeting. Olympia, Washington. September 13, 1994.

"Strategic Thinking in Oregon and Utah." Speaker, Meeting of the New Mexico Horizons Task Force. Santa Fe, New Mexico. August 25, 1994.

"Economics and Livability of Cities." Speaker, Washington State Department of Community, Trade and Economic Development, Downtown Revitalization Program Meeting. Kent, Washington. August 5, 1994.

"Environmental Economics." Speaker, Sierra Club Legal Defense Fund Annual Meeting. Chico Hot Springs, Montana. May 24-28, 1994.

"Cycles & Trends: It's All a Matter of Timing." Speaker, 1994 Construction Industry Conference. Portland, Oregon. May 20, 1994.

"Contemporary Issues in Externalities." Speaker, NARUC-DOE Fifth National Conference on Integrated Resource Planning. Kalispell, Montana. May 15-18, 1994.

"The College Student and the Economy." Speaker, Pacific Northwest Association of College Admissions Counselors. Portland, Oregon. April 22, 1994.

"Oregon's Economy: The Recent Past and Projections for the Future." Keynote Speaker, Oregon State System of Higher Education's Counselor Conference. Eugene, Oregon. October 15, 1993.

"How Do We Value Biodiversity in Ecosystems?" Speaker, Forest Products Research Conference. U.S. Forest Service. Madison, Wisconsin. September 28, 1993.

"The Need for Sustainable Development and NW Regional Cooperation." Introduction, Pacific Northwest Sustainable Development Convenors Forum. Portland, Oregon. September 13, 1993.

"Role of Strategic Planning in Framing Performance Measures and Accountability." Speaker, City of Seattle Mayor's Retreat. Seattle, Washington. August 19, 1993.

"Meeting the Challenge: The Economic Benefits of Wildlife." Speaker, Oregon Department of Fish and Wildlife's 100th Anniversary Celebration. Portland, Oregon. July 23, 1993.

"Oregon's Real Economy." Keynote Speaker, Oregon Downtown Development Association Annual Conference. June 11, 1993.

"Social Considerations of High Quality Forestry." Keynote Speaker, Workshop on High Quality Forestry. U.S. Forest Service, Pacific Northwest Research Station. May 11, 1993.

"The Effect of Taxes on Oregon's Economy." Oregon State Legislature, Joint Interim Committee on Revenue and School Finance. September 16, 1992.

"Trojan Shutdown or Phasedown: Who Pays?" Portland City Club. Portland, Oregon. August 21, 1992.

"Environmental Externalities and Utilities." Northwest Power Planning Council Work Session. June 24, 1992.

"Washington's Changing Economy: The Challenge for Future Regulation." Washington State Bar Association's Environmental and Land Use Law Section Seminar. May 29, 1992.

"Economic Forecast." District 10 Pacific Northwest Council Credit Professionals International Credit Association, 1992 Credit Conference. Portland, Oregon. May 19, 1992.

"The Economic Myths and Realities of Timber and Owls." Eugene City Club. Eugene, Oregon. March 1992.

"Economy of the Eugene-Springfield Area and How It May Influence Real Estate Values." Eugene Association of Realtors. Eugene, Oregon. March 1992.

"The Economics of the God Squad Hearings: How Will It Affect Oregonians?" League of Women Voters. Eugene, Oregon. February 1992.

"The Current Economic Issues Associated with Oregon's Natural Resources." City Club of Portland. Portland, Oregon. February 1992.

"The Oregon Economy: What's Going On and What's Going to Go On." Dinner speaker, Oregon Editorial Writers Conference. Eugene, Oregon. October 1991.

"The Economics of Water Resource Management." Western Regional Conference, National Association of State Budget Officers (NASBO). Seattle, Washington. August 1991.

"The Economy and Oregon's Public Schools." Oregon Association of School Business Officials (OASBO) 1991 Summer Conference. Bend, Oregon. July 1991.

"Achieving a Predictable Timber Supply and Community Stability While Protecting Forest Ecosystems." Briefing for Congressional and Governors' Staff of Oregon and Washington. Vancouver, Washington. May-June 1991.

"New Perspectives and the Forest Service: A New Way of Thinking." Portland Metropolitan Chamber of Commerce. Portland, Oregon. May 1991.

"Reversal of Fortune: The Economics of New Perspectives." Keynote Speaker, Western Forest Economists Conference. Portland, Oregon. May 1991.

"New Perspectives and the Forest Service." Pacific Northwest Regional Economic Conference. Portland, Oregon. May 1991.

"Economics of Pollution and Clean-Up: What Price to Society Today and Tomorrow?" Water Quality, Water Quantity: The Reluctant Marriage Conference. Northwestern School of Law of Lewis and Clark College and WaterWatch of Oregon, Inc. February 1991.

"New Perspectives University Colloquium Coordination Workshop." U.S. Forest Service, Rocky Mountain Forest and Range Experiment Station. Denver, Colorado. January 1991.

"The Northwest Economy." Oregon Municipal Finance Officers Association. Portland, Oregon. November 1990.

"Transforming from a Natural Resource Based Economy." Visualizing the Future: Idaho's Second Century Symposium. Idaho Centennial Commission. Boise, Idaho. November 1990.

"The Nineties - A Decade for Change." Twenty-Seventh Annual PNWIS-AWMA Conference. Portland, Oregon. November 1990.

"The Northwest Economy." Commercial Investment Realtors of Lane County. November 1990.

"Clear Cut Crisis." Panelist. Oregon Public Broadcasting Symposium. Portland, Oregon. August 1990.

"Oregon's Changing Economy and Marketplace." Panelist, Oregon Downtown Development Association Annual Conference. Eugene, Oregon. July 1990.

"Generators Beware: Environmental Firms Are Clustering for a Reason." Keynote speaker, Environmental Hazards Annual Conference. Seattle, Washington. May 1990.

"New Perspectives on Forest Management." U.S. Forest Service Symposium. Forestry Sciences Laboratory. Corvallis, Oregon. April 1990.

"The Economy and the College Student." Keynote speaker, National Academic Advising Association Region 8 Conference. Portland, Oregon. March 1990.

"Fast Forward to 2000: The Once and Future Northwest." Keynote speaker, City Club. Portland, Oregon. January 1990.

"Futures Focus Group: Governor's Commission on Higher Education, Portland Metropolitan Area." Portland, Oregon. December 1989.

"The Anatomy of a Timber Supply Crisis." Moderator, The Timber Supply Crisis: Potential Impacts and Economic Development Policy Options, a Colloquium. Northwest Policy Center. Seattle, Washington. November 1989.

"Economic Impacts of Protecting the Environment." Pacific Northwest Pollution Control Association Annual Conference. Eugene, Oregon. October 1989.

"Global Warming: The Stakes." "Sustainable Energy: A Path for Environmental Stewardship." Solar Energy Association of Oregon Annual Conference. Eugene, Oregon. October 1989.

"Whose Water? Past; Present; Future." University of Washington, Institute for Environmental Studies. Seattle, Washington. September 1989.

"The Once and Future Northwest." West Coast Public Radio Conference. Seattle, Washington. September 1989.

"Strategic Economic Development and the Environment." Land Conservation and Development Commission Workshop. Silver Falls, Oregon. September 1989.

"Oregon's Plan for Excellence." Council for Economic Development in Oregon, Annual Conference. September 1989.

"Transportation to the 21st Century." American Economic Development Council, 1989 Western Region Conference. Eugene, Oregon. September 1989.

"Planning for Economic Growth." Oregon's Next Decade of Land Use Planning. 1989 Oregon Planning Institute. Eugene, Oregon. September 1989.

"Resource Regulation in Oregon's Future." Statewide Retreat for Natural Resource Agency Heads. Silver Falls, Oregon. August 1989.

"Future Social, Economic, and Cultural Trends for Oregon: Implications for Public School Education." Oregon Leadership Academy's Spring Leadership Conference. Confederation of Oregon School Administrators. Eugene, Oregon. April 1989.

"Governor Goldschmidt's Strategic Economic Plan for Oregon." Oregon Chapter, American Planning Association Spring Conference. Beaverton, Oregon. March 1989.

"The Linkage between Public-Works Infrastructure Financing and Economic Development." Special Districts Association of Oregon, Annual Conference. Ashland, Oregon. February 1989.

"Economic Development Impacts of Old Growth Preservation." Oregon's Forests in 2010, a conference on the future of Oregon's forests, hosted by U.S. Representative Peter DeFazio and Oregon State Representative David Dix. Eugene, Oregon. February 1989.

"Regional Economic Development Issues." 1988 Issues Conference of the Northwest Business Coalition. Portland, Oregon. November 1988.

"The Economic Future of the Northwest." 1988 Government Finance Officers' Association, Annual Conference. Seattle, Washington. November 1988.

"The Changing of State Economic Development Policy." Tenth Annual Association for Public Policy Analysis and Management Research Conference. Seattle, Washington. October 1988.

"The Oregon Economy." Oregon Business Week and Western Oregon State College. Monmouth, Oregon. August 1988.

"Evaluating the Role of Fish in the Development of the Pacific Northwest's Economy--or Is It the Other Way Around?" Salmon and Steelhead Roundtable, sponsored by the Northwest Power Planning Council. June 1988.

"Developing a Strategic Plan for Regional Economic Growth." Northwest Policy Center Journalists Forum. May 1988.

"Regional Economic Strategies in the Pacific Northwest." An hour-long interview for KOEW Radio. Seattle, Washington. March 1988.

Invited panelist on urban and rural economic growth. Agriculture Conference Days, Oregon State University. Corvallis, Oregon. February 1988.

Invited testimony before the Committee on Trade and Economic Development. Oregon State Legislature. January 1988.

Invited participant, Regional Strategies Conference. University of Washington, Institute for Public Policy and Management. Seattle, Washington. January 1988.

"A New Approach to Old Economic Development Strategies." Washington Energy Task Force. Olympia, Washington. December 1987.

"The Economic Past and Future of Oregon." Sunset Corridor Association's Fall 1987 Conference. Beaverton, Oregon. October 1987.

"Regional Development Strategies: State and Local Roles." Thirteenth Annual Oregon Planning Institute. Eugene, Oregon. October 1987.

"Accelerating Our Economic Development." State of Washington, Economic Conference for Senior Officials: The Economics of the State and Its Regions—What We Know About the Present and What We Can Do for the Future. Washington Institute for Public Policy. Olympia, Washington. June 1987.

"Perspectives on Economic Development Strategies." Northwest Allied Newspapers, Annual Meeting. May 1987.

"New Economic Strategies for Regional Development." Twenty-First Annual Pacific Northwest Regional Economic Conference. Seattle, Washington. May 1987.

Invited testimony before the Committee on Trade and Economic Development. Oregon State Legislature. January 1987.

"The Economics of Economic Development." Seventh Biennial Legislative Conference on the Economy. Salem, Oregon. January 1987.

"Changing Oregon's Economy from an Old Growth Economy." Oregon Natural Resources Council. September 1986.

"Outlook for the National, State, and Local Logging Industry for 1986." Associated Oregon Loggers, Inc. 16th Annual Convention. Springfield, Oregon. January 1986.

"Idaho Economic Development—Prescriptions for Progress." Governor's 1985 Economic Symposium. Boise, Idaho. December 1985.

"Getting the Goods and Paying for Them." PNPCA Sewer Design/Construction Program. Portland, Oregon. October 1985.

"Small Businesses in the Pacific Northwest: The Real Wealth of Nations." Meeting of Portland *Oregonian* Business Forecast. Portland, Oregon. July 1985.

"Amendments to Oregon's Land Use Planning Goal 9: The Economy." Invited testimony before City Club of Portland, Standing Committee on Land Use. Portland, Oregon. July 1985.

"Making Sure Oregon's Journey on the River Styx Is Roundtrip." Democratic Business Forum. Portland, Oregon. July 1985.

"A Look at the Northwest Region." Round Table for Unions in the Wood Products Industry. Portland, Oregon. May 1985.

"A Descriptive, Explanatory, and Prescriptive Analysis of the Economics of Washington and Oregon." Nineteenth Annual Pacific Northwest Regional Economic Conference. Portland, Oregon. May 1985.

"Economic Development and the Future of Portland." Invited testimony before Portland Commissioner Mike Lindberg and staff. Portland, Oregon. January 1985.

"Can Our Taxes Survive Our Economic Development?" Council of Governments, Annual Dinner Meeting. Salem, Oregon. January 1985.

"Small Business Formation." Meeting of Portland *Oregonian* Business Forecast. Portland, Oregon. January 1985.

"Can Our Taxes Survive Our Economic Development?" League of Oregon Cities. Eugene, Oregon. November 1984. Also, State Senate Democratic Caucus. Silver Falls State Park, Oregon. January 1985.

"Economic Development and the Future of Portland." Presentation and discussion. The City of Portland, Office of Public Works. November 1984.

"National and Northwest Economic Outlook" and "Business Formation in the Northwest." Inaugural Meeting of Portland *Oregonian* Business Forecast. Portland, Oregon. July 1984.

"State Economic-Diversification Strategies." Oregon Democratic Campaign Workshop. Portland, Oregon. June 1984.

"The Economy and the College Student: More Recent Observations." Pacific Northwest Regional Economic Conference. Olympia, Washington. May 1984.

"The Implications of Increasing Average Costs of Electrical Generation in the Pacific Northwest." Northwest Conservation Act Coalition Conference. Spokane, Washington. April 1984.

"The State of the Economy." Building Trades Business Agents Institute. Eugene, Oregon. March 1984.

"The Economics of Fish and Power." Pacific Northwest Electric Power and Conservation Planning Council. Portland, Oregon. February 1983.

"The Economics of Fish and Power." Hydro-Power Symposium, American Fish Society, Montana Chapter. Kalispell, Montana. February 1983.

"The Economy and the College Student." American Association of Higher Education. Seattle, Washington. November 1982.

"Directions in Oregon Land-Use Planning." Oregon Chapter of the American Society of Landscape Architects. Eugene, Oregon. November 1982.

"Housing and the Economy." State Housing Division and Oregon State Home Builders Association. Salem, Oregon. October 1982.

"Achieving Energy Conservation by Rate Design in the Residential Sector." Regional Power Plan Workshop, Pacific Northwest Electric Power and Conservation Planning Council. Seattle, Washington. October 1982.

"The Economics of the Northwest Region." Central Oregon Project Energy Conference. Sun River, Oregon. September 1982.

"Land Use, Public Facilities, and Economic Development." Portland City Club. Portland, Oregon. July 1982.

"Financing the Infrastructure." Oregon Legislative Joint Interim Task Force on Managing and Financing Growth. Eugene, Oregon. July 1982.

"Economic Impacts of Energy Investments." International City Management Association, Northwest Regional Conference, League of Oregon Cities. Salishan Lodge, Oregon. March 1982.

"Developing Industrial Lands." Testimony before the Industrial Lands Subcommittee of the Joint Legislative Committee on Land-Use. Portland, Oregon. March 1982.

"Current Economic Issues." Labor Education and Research Center, Building Trades Representative Institute. University of Oregon. Eugene, Oregon. March 1982.

"Oregon Economic Conditions and Forecasts." Oregon Association of School Boards. Inn at Otter Crest, Newport, Oregon. January 1982.

"The State and National Economies: The Foreseeable Impact on Local Government." State Council of Firefighters, Labor Education and Research Center. University of Oregon. December 1981.

"Environmental Impacts and the Evaluation of Resource Acquisitions." Third Annual, Alternative and Renewable Energy Resource Conference, and Bonneville Power Administration. University of Montana. September 1981.

"State and Local Economic Development: Target Variables—Tools and Strategies." Fifteenth Annual Pacific Northwest Regional Economic Conference. Boise, Idaho. April 1981.

"Economic Growth, Public and Private Sector Financing Problems, and Future Development." Oregon League of Women Voters. Eugene, Oregon. April 1981.

"The Economic Outlook." Society of Industrial Realtors, 1st Annual Real Estate Conference. Portland, Oregon. April 1981.

"Oregon's Economic Forecast." Oregon Senate Review Committee. Salem, Oregon. March 1981.

"Current Economic Conditions." Labor Education and Research Center's Session for Business Agents, Building Trades Union. University of Oregon. Eugene, Oregon. March 1981.

"Economics and Public Policy Issues in Mass Transit." Transit Union Representatives' Training Institute. Asilomar, California. January 1981.

"Mass Transit: Economics and Public Policy." Mass Transit Union Representative Training Institute. U.S. Department of Transportation and AFL-CIO, George Meany Center for Labor Studies. University of Oregon (Eugene, Oregon), July 1980. University of California (Berkeley, California). November 1980 and January 1981.

"National/Regional/Oregon Economics." League of Oregon Cities. Portland, Oregon. December 1980.

"Economics and Public-Policy Issues in the Mass Transit Industry." Transit Union Representatives' Training Institute. Asilomar, California. November 1980.

"State and Local Economic Development in Oregon" and "Vehicles for Local Economic Development." Annual Conference of the League of Oregon Cities. Salem, Oregon. November 1980.

"The Pacific Northwest as Viewed by a Practitioner of the Dismal Science." Fourth Annual Northwest Regional Financial Planning Conference. May 1980.

"Approaches to Estimating the Effects of Public Policies on Urban Land Prices." Pacific Northwest Regional Economic Conference. Portland, Oregon. May 1980.

"The Pacific Northwest's Economic Future." Annual Northwest Regional Financial Planning Conference, International Association of Financial Planners. Portland, Oregon. May 1980.

"New England and the Pacific Northwest: Regional Economic Comparisons." Fourteenth Annual Pacific Northwest Regional Economic Conference. Portland, Oregon. May 1980.

"Approaches to Estimating the Economic Effects of Public Policies on Urban Land Prices." Pacific Northwest Regional Economic Conference. Portland, Oregon. May 1980.

"Measuring the Effects of Public Policy on Land Prices." U.S. Department of Housing and Urban Development and Urban Land Institute. Washington, D.C. February 1980.

"The Economics of the Extended Family." Oregon Community Education Association. Eugene, Oregon. February 1980.

"Urban Growth Boundaries." Oregon Land-Use Conference for Realtors and Homebuilders, sponsored by Dialogue Northwest. Portland, Oregon. May 1979.

"Neighborhood Revitalization." Neighborhood Revitalization Workshop, Oregon Savings and Loan League. Portland, Oregon. May 1979.

"The Economics of Land Use." Legislative Conference on the Economy, Oregon Council on Economic Education. Willamette University. Salem, Oregon. January 1979.

"The Effects of Legislative Action on Land Value." Seminar on Residential Property Values in Transition. Central Oregon Chapter of the American Society of Appraisers. September 1978.

"Shopping Patterns and Municipal Regulations in Nairobi." Western Regional Science Association Meetings. Long Beach, California. February 1974.

"Urbanization, Land Use and Long-Range Planning in the State of Oregon." Eighth Annual Pacific Northwest Regional Economic Conference. Seattle, Washington. April 1974.

"Land-Use Planning, Economic Development and the Distribution of Population in Oregon." Seventh Annual Pacific Northwest Regional Economic Conference. Portland, Oregon. April 1973.

"Critical Appraisal of the American Institute of Architects National Policy on Urban Growth." AIA/Press Seminar. Portland, Oregon. September 1972.

"The Economics of Poverty in Relation to Choice." Annual Meeting of the American Psychology Association. San Francisco. September 1968.

"Municipal Investment: An Econometric Analysis." Harvard Seminar on Regional and Urban Economics, Resources for the Future. Cambridge, Massachusetts. November 1967.

## TELEVISION AND RADIO COMMENTARIES

*National Public Radio*, Talk of the Nation. Host: Neal Conan. “Northwestern U.S. Economy.” November 2002

*National Public Radio Series (taped for KLCC radio, Eugene, Oregon): "Current Economic Issues"*

"The Defeat of Measure 28 and the Future of Oregon's Economy." January 2003.

"Bush vs. Clinton: A Clear Economic Choice." September 1992.

"Why Oregon's Water Policies Are All Wet." August 1992.

"Thanks for the Memories, Larry Campbell." July 1992.

"Tackling Intercollegiate Athletics." November 1991.

"Discussing the Conversation." September 1991.

"Coming Soon: The Legislative Session." July 1991.

"The Graduate (Circa 1991)." June 1991.

"The Prognosis for Health Care." May 1991.

"Family Crisis and Their Costs." April 1991.

"All in the Families." March 1991.

"Mixing Oil and Water." March 1991.

"An Oregon Forecast That's Partly Sunny." February 1991.

"Teaching Our Schools a Lesson." January 1991.

"Taking Five." November 1990.

"Clear Cut Crisis." Panelist, Oregon Public Broadcasting Symposium. Portland, Oregon. August 1990.

"Oregon's Changing Economy and Marketplace." Panelist, Oregon Downtown Development Association, Annual Conference. Eugene, Oregon. 1990.

"The Once and Future Northwest." West Coast Public Radio Conference. Seattle, Washington. September 1989.

"Regional Economic Strategies in the Pacific Northwest." An hour-long interview for KOEW Radio. Seattle, Washington. March 1988.

"The University of Oregon's Riverfront Research Park." Radio interview, Willamette Science and Technology Center's series, *Getting Technical*. KWAX-FM. Eugene, Oregon. September 1985.

## COMMUNITY SERVICE, SPEECHES, AND WORKSHOPS

"The Future of Lane County: Jobs and Economic Development." Community Forum. Eugene, Oregon. October 2008.

"Putting your Economic Demand on Solid Footing: How expert witnesses can help in assessing civil penalties and restitution in environmental cases." CDAA's Environmental Crimes 101. Speaker at California District Attorneys Association/California Hazardous Materials Investigators Association 2008 Conference. Shell Beach, California. March 2008.

“Describing and Evaluating the Economy: Education Program for Oregon Judges.” Speaker at Judicial Regional CLE conference. Eugene, Oregon. February 23, 2007.

“13th Economic Forecast 2007,” Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 2007.

“The Economic Anomalies of American and Eugene/Springfield’s Healthcare Markets.” Town meeting, sponsored by the Osher Lifelong Learning Institute. Eugene, Oregon. March 2006.

“Economic Impacts of Ballot Measure 37.” Panel presentation, sponsored by Eugene Area Chamber of Commerce. Eugene, Oregon. December 2004.

Lane County Forecast 2004, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 2004.

Lane County Forecast 2003, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 2003.

Lane County Forecast 2002, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 2002.

“Economic Matters & Economics Matters: Oregon’s Road Into and Out of the Current Economic Recession.” Keynote speaker, Mid-Willamette Valley Council of Governments Annual Meeting. Salem, Oregon. January 2002.

Lane County Forecast 2001, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 2001.

"Economic Case Against Logging." Panel participant, University of Oregon, Environmental Law Conference. Eugene, Oregon. March 2000.

Lane County Forecast 2000, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 2000.

"Space, Time and Eugene's Economy." Panel participant, City of Eugene, 1999-2000 City Goals Process, Environmental Scan. Eugene, Oregon. February 1999.

Lane County Forecast '99, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. February 1999.

"Making Sense of Trends and Cycles." Principal Speaker, Lane Council of Governments Appreciation Dinner. Eugene, Oregon. January 1999.

"Environmental Issues in the Pacific Northwest." Speaker, University of Oregon Department of Economics, Lecture Series. Eugene, Oregon. July 1998.

"Economic Forecast 1998." Oregon Association of Realtors: Spring Real Estate Conference. Eugene, Oregon. March 1998.

Lane County Forecast 1998, Panel discussion sponsored by the *Register-Guard* and Eugene Area Chamber of Commerce. Eugene, Oregon. January 1998

Oregon Speech-Language & Hearing Association’s Fall Conference. Bend, Oregon. October 1997.

“Thriving in a Hostile Environment.” Oregon Department of Revenue. Salem, Oregon. October 1996.

"Voting Your Pocketbook." City Club of Portland. Portland, Oregon. November 1996. Aired on Oregon Public Broadcasting and area cable television.

Lewis & Clark Law School, Seminar on Growth Management. November 1992.

"Measures 5 and 7: How Do They Impact the Oregon Economy?" Clergy and Laity Concerned (CALC) Fall Forum. October 1992.

"The Changing Economy and Housing." Eugene Housing Committee/City Club. Eugene, Oregon. June 1991.

"Changes in the Pacific Northwest Economy." Eugene Estate Planning Council. Eugene, Oregon. May 1991.

"Eugene's Economic Future: If Not Timber, What?" City Club of Eugene. November 1990.

"Region on Trial." Northwest Public Affairs Network. Seattle, Washington. September 1990.

"Ancient Forest National Symposium and Retreat." The Wilderness Society. Breitenbush Park, Oregon. August 1990.

"Ancient Forests." Oregon Public Broadcasting. Portland, Oregon. August 1990.

"Oregon's Changing Economy and Marketplace." Oregon Downtown Development Association. Eugene, Oregon. July 1990.

"The Spotted Owl and the Northwest Economy." Local radio and television stations. Eugene, Oregon. Spring 1990.

"Economy and the College Student." Golden Key Club, University of Oregon. Eugene, Oregon. January 1990.

"Metropolitan Economic Development Strategies: A Panel Discussion." Eugene Area, Chamber of Commerce. Eugene, Oregon. December 1989.

"Lane County Regional Economic Trends." Conference on the Economy of Lane County, sponsored by Lane Council of Governments and Eugene-Springfield Metro Partnership. Springfield, Oregon. November 1989.

"Timber Issues Call-In." Invited participant, KSOR public radio for Southern Oregon and Northern California. Ashland, Oregon. July 1989.

"Oregon's Economy in 1989 and Beyond." Emerald Valley Development Professionals. Eugene, Oregon. January 1989.

"Education and the Economy." Churchill High School, Career Awareness Program. Eugene, Oregon. January 1989.

"The Economic Future of Lane County." Eugene/Springfield Leadership Conference. Eugene, Oregon. September 1988.

"Career Opportunities in Economics." Student Economic Association. University of Oregon. May 1988.

"Developing Oregon's Economy Strategically." Junction City-Harrisburg Area, Chamber of Commerce. Junction City, Oregon. March 1988.

"Strategies for Oregon's Economic Development." Eugene Active 20-30 Club. Eugene, Oregon. March 1988.

"Presidential Campaign '88: The Candidates and the Economic Issues." Student Economics Association, Presidential Symposium. University of Oregon. March 1988.

"The Economy and the College Student." New Student Host Program's Academic Symposium. Eugene, Oregon. September 1987.

"The Economic Future of Lane County." Eugene/Springfield Leadership Conference. Eugene, Oregon. September 1987.

"The Environment and Regional Economic Development." Earth Week 1987. University of Oregon. April 1987.

"How to Make Oregon's Journey to the River Styx Roundtrip." Eugene/Springfield Leadership Conference. Eugene, Oregon. April 1987.

Reviewed nominations and selected award winners for the Oregon Chapter of the American Planning Association, Awards Jury. Albany, Oregon. March 1987.

"Lane County Business and Economic Forecast for 1987." Lane Community College. December 1986.

"Lane County Business and Economic Forecast for 1987 and Beyond." Eugene-Springfield Leadership Conference. September 1986.

"Old Growth, New Growth: Timber Issues in the Pacific Northwest." Earth Day. University of Washington. April 1986.

"The Economy and the College Student." Oregon State Correctional Institution and Oregon State Penitentiary. February 1986.

"Lane County Business and Economic Forecast for 1986." Eugene Kiwanis Club. February 1986.

"Lane County Business and Economic Forecast for 1986." Eugene Hospital and Clinic. February 1986.

"Economic Future of Lane County." Metro Scene sponsored by the Eugene Area Chamber of Commerce. Eugene, Oregon. January 1986.

"An Overview of the National, State, and City Outlook." Lane County Business and Economic Forecast for 1986. Eugene, Oregon. December 1985.

"The Economics of Housing." Lecture and discussion for a course on "Housing in Society." University of Oregon. November 1985.

"How to Make Oregon's Journey on the River Styx Roundtrip." South Lane Public Issues Forum. Cottage Grove, Oregon. November 1985.

"The Benefits of Small Business." University of Oregon, Speaker Service Reception. University of Oregon. September 1985.

"Northwest Economic Future: Where We Are and Where We're Going." Eugene Downtown Rotary Club. Eugene, Oregon. September 1985.

"The University of Oregon's Riverfront Research Park." Radio interview. Willamette Science and Technology Center's series, *Getting Technical.* KWAX-FM. Eugene, Oregon. September 1985.

"Making Sure Oregon's Journey on the River Styx Is Roundtrip." National Association of Accountants. Eugene, Oregon. September 1985.

"How to Make Washington's Journey on the River Styx Roundtrip." Olympia Economist Club. Olympia, Washington. March 1985.

"Northwest Economic Future: Where We Are and Where We're Going." City Club of Portland, Standing Committee on Land Use. Portland, Oregon. March 1985.

"Oregon's Economic Development: Promises and Prospects." University of Oregon, Forum. Albany, Oregon. March 1985.

"Is There Economic Life After High School?" Student Body, Sheldon High School. Eugene, Oregon. March 1985.

"The Budget Deficit and the Trade Deficit: Symptoms of the Fiscal Revolution." First United Methodist Church. Eugene, Oregon. March 1985.

"Oregon's Economic Conditions, Prospects, and Policies." Lane Democratic Forum. Eugene, Oregon. February 1985.

"Myth and Reality: Oregon's Economy and Taxes." Southern Oregon State College. February 1985.

"Can Lane County Survive?" Eugene-Springfield Real Estate Research Committee, Semi-Annual Meeting. November 1984.

"The Level and Composition of Economic Growth in Greater Portland." First quarterly meeting of *The Business Journal* Board of Economists. Portland, Oregon. July 1984.

"Strategic Economic Planning for Higher Education." Mission Planning Commission, Lewis and Clark College. January 1984.

"Is There Economic Life After High School?" Crescent Valley High School. Corvallis, Oregon. November 1983.

"The U.S. Economy." Sundstrand Data Control. Sunriver, Oregon. September 1983.

"Economics and the Editorial Page." Wendell Webb Seminar, School of Journalism. University of Oregon. June 1983.

"Is There Economic Life After High School?" Sheldon High School. Eugene, Oregon. June 1983.

"Economic Recovery: How Soon? How Good?" Parents' Weekend. University of Oregon. May 1983.

"The Economy and the College Student." Economics Department, Lewis and Clark College. May 1983.

"The Economy and College Student." College Faculty and Staff and Guests of Business, Lewis and Clark State College. Lewiston, Idaho. February 1983.

"A Business and Economic Forecast for 1983: Eugene's Economy." Business Assistance Team, Eugene Chamber of Commerce, and Lane Community College. Eugene, Oregon. December 1982.

"Local Economic-Development: Causes and Strategies." Linn-Benton Economic Development Forum. Corvallis, Oregon. November 1982.

"Economic Development in Lake Oswego." Lake Oswego Chamber of Commerce Workshop. Inn at Spanish Head, Lincoln City, Oregon. October 1982.

"Evaluation of the Industrial Sector Forecasting Models of the Pacific Northwest Utilities." Conference Commission and the Northwest Energy Policy Project, Bonneville Power Administration Workshop. Portland, Oregon. October 1982.

"The Oregon Economy." University of Oregon Day at the Eugene Hilton. Eugene, Oregon. October 1982.

"Capitalist Theory Today." Nineteenth Annual Grace Graham Vacation College. August 1982.

"Economic Development Strategies." City of Coos Bay Workshop. Coos Bay, Oregon. August 1982.

"Economic Development Strategies." City of Oregon City Workshop. Oregon City, Oregon. August 1982.

"Reaganomics: A Status Report." Labor Education and Research Center, UFCW Training Program. University of Oregon. July 1982.

"Plant Modernization and Its Impact on Structure of Wood Products Industry." Bureau of Governmental Research Service, University of Oregon. July 1982.

"The Current Recession and the Prospects for Surviving." Office of University Relations Workshop. Bend, Oregon. June 1982.

"Economic Development Strategies." Lake Oswego Chamber of Commerce, Forum Meeting. Lake Oswego, Oregon. May 1982.

"The Economic Outlook for the 1980s." Spring Parents' Weekend, Student University Relations Council, University of Oregon. Eugene, Oregon. May 1982.

"Economic Recovery in Lane County." Lane County Small Business Association, Lane Community College Downtown Center. Eugene, Oregon. April 1982.

"Local Economic-Development Strategies." Employment and Training Department, Lane County. Eugene, Oregon. March 1982.

"Economic Outlook for the Forest-Products Industry." Koppers Chemicals and Coatings. Eugene, Oregon. March 1982.

"Future Options for Economic Development." KOZY-TV. Eugene, Oregon. January 1982.

"Basic Concepts of Economics: Schools of Thought, from Keynes to Reaganomics and Beyond," "Economic Growth," and "Policy Outcomes and Strategies for Labor." Labor Education and Research Center, Economics Seminar. Salem, Oregon. December 1981.

"Growth Industries: The Next 20 Years." Lane County Private Industry Council. Lane County Fairgrounds, Eugene, Oregon. November 1981.

"Reaganomics." Department of Economics. University of Montana. May 1981.

"Is There Life After High School." Junior Achievement's 1981 Oregon Management Conference. Inn at Otter Crest, Newport, Oregon. February 1981.

"The Economy of the Willamette Valley" and "Commercial and Industrial Locations: Some Hints About What Business Looks For." League of Oregon Cities. Portland, Oregon. November 1980.

"Inflation, Recession, and Economic Growth." Lecture and discussion, Vacation College, University of Oregon. Eugene, Oregon. August 1980.

"Economics of Today." Lecture and discussion, Economics Workshop sponsored by Rogue Community College. Grants Pass, Oregon. April 1980.

"Economic Conditions, Land-Use Patterns and Real Estate in Eugene-Springfield." Eugene Board of Realtors. Eugene, Oregon. March 1980.

"Economic Conditions, Land-Use Patterns, and Real Estate in Eugene-Springfield." Eugene Board of Realtors. Eugene, Oregon. March 1980.

"Oregon's Economy: Diagnosis and Prescription." Albany Area Chamber of Commerce. Albany, Oregon. May 1980.

"Northwest Economic Outlook." Oregon Society of Certified Public Accountants. Eugene and Portland, Oregon. November-December 1979.

"Oregon's Economy." Staff retreat, Eugene Hospital and Clinic. Eugene, Oregon. November 1979.

"Oregon's Economy." City Club of Portland. Portland, Oregon. September 1979.

"Economics: Various Viewpoints." Alumni Summer College. Linfield College. August 1979.

"Eugene's Economy and Growth Management." Lecture and discussion for a class on "Community Concerns." North Eugene High School. March 1979.

"Economic Costs of Growth Management Policies." Speech and discussion, Growth Management Workshop sponsored by Jackson and Josephine Counties and Oregon State University, Extension Service. February 1979.

"Urban Economics and Public Policy." Short Courses, Department of Urban and Regional Planning, University of Oregon. Eugene, Oregon. 1977, 1978, and 1979.

"Economic Forecasts for the Eugene-Springfield Area." Emerald Executive Association. Eugene, Oregon. October 1978.

"Economic Growth in the Eugene-Springfield Area." League of Women Voters of Central Lane County. Eugene, Oregon. May 1978.

"Hood River's Economy: Some Alternatives for Local Economic Planning." County Planning Commission, City Planning Commission, County Commissioners, City Council, Chamber of Commerce, and various citizens groups. Hood River, Oregon. March 1978.

"Oregon's Non-Forest Economy." Forests and Oregon's Economic Future Conference, sponsored by the Oregon Student Public Interest Research Group (OSPIRG). Eugene, Oregon. February 1978.

"Community Development Corporations and Eugene's Economy." Community Forum Series. Eugene, Oregon. February 1978.

"The Economics of the Community School." Workshop on the Extended Family, sponsored by the Oregon Community Education Association. Eugene, Oregon. February 1978.

"The Economy of the Eugene-Springfield Metro Area." Joint session of the Retired Officers Association and the Navy League. Eugene, Oregon. January 1978.

"Lane County's Economy and Vehicles for Economic Development." Economic Development Forum, sponsored by the City of Eugene, the City of Springfield, Lane County, and the Eugene-Springfield Chamber of Commerce. Springfield, Oregon. November 1977.

"Vehicles for Economic Development: Workshops on Local Economic Planning." Conducted for the Eugene City Council. Eugene, Oregon. October-November 1977.

"Urban Fiscal Crises." Lecture and discussion, Vacation College, University of Oregon. Eugene, Oregon. August 1977.

"The Economics of Oregon's Future." Oregon Conference on Survival. Menucha in Corbett, Oregon. June 1977.

"Economic Development and Portland." Paper and discussion. Invited by Mayor Neil Goldschmidt. Portland, Oregon. November 1975.

"The Western Environmental Trade Association's (WETA's) Evaluation of OCC&DC's Coastal Zone Management Program." Oregon's Lane Conservation and Development Commission. Salem, Oregon. May 1975.

"Economic Impacts of the Proposed Pacific Rim Center." Portland City Planning Commission and Portland City Council. August-November 1973.

"Economics and Ecology: Key Issues in the Controversy." Public Discussion Series on Environment and Population. University of Oregon. February 1970.

"Intra-Urban Industrial and Residential Location," "The Urban Ghetto Problems of Race and Poverty," "Urban Renewal and Federal Housing Policy," "Municipal Finance," and "The Urban Transportation Problem." Short Course in Business and Economics, Hill Foundation Seminar for Newsmen, University of Oregon. Eugene, Oregon. July 1969.

"The Application of Benefit-Cost Analysis to Education." NDEA School Administration, In-Service Project. Eugene, Oregon. October 1968, March 1969.

"Expenditures: Oregon in Perspective." Conference on State and Local Tax Policy for Oregon: Perspectives and Alternatives. Sponsored by the School of Business and Technology, Department of Economics and the Cooperative Extension Service of Oregon State University. Corvallis, Oregon. March 1969.

"Urban Problems: Finance, Housing and Transportation." Oregon House Committee on Urban Affairs. Salem, Oregon. February 1969.

"Economics and Real Property." Oregon State Tax Commission, Appraisal Short Course, Oregon State University. Corvallis, Oregon. August 1968.

"The Function and Incidence of Taxation." Hill Foundation Seminars for Newsmen, University of Oregon. Eugene, Oregon. July 1968.

# BRYCE WARD

Ph.D. Economics, Harvard University
B.A. Economics and History, University of Oregon

Bryce Ward joined ECONorthwest in 2005. His areas of expertise include econometric analysis and applied microeconomics -- including urban and regional economics, labor economics, public finance, and environmental and natural resource economics. Dr. Ward has applied his expertise to a variety of projects involving litigation support and program evaluation. His recent work includes evaluations of the efficacy of several education interventions and of the effects of land-use regulations on property markets.

Dr. Ward received his Ph.D. in economics from Harvard University and his B.A. in economics and history from the University of Oregon, and he has taught courses in labor economics, microeconomic theory, public finance, environmental and natural resource economics, and social economics at Harvard College, Lewis and Clark College, and the University of Oregon.

## Litigation Support Projects

**Anti-Trust**

- Assessed the economic aspects of alleged anticompetitive behavior in the market for outpatient diagnostic imaging services in the Reno area
- Analyzed the economic issues of class certification and damage calculations related to alleged antitrust violations in the market for residential lots
- Analyzed the market for MRI services in the Boise area and assessed alleged anticompetitive behavior in this market

**Environment**

- Reviewed an economic analysis prepared by the USDA regarding proposals for the application of pesticides to eradicate the Light Brown Apple Moth
- Analyzed potential market responses to a natural disaster
- Calculated profit disgorgement based on emission violations
- Evaluated a contingent valuation study of a proposed wind farm
- Reviewed and evaluated the economic components of a feasibility study and preferred clean-up remedy for a contaminated site
- Evaluated the U.S. Environmental Protection Agency's draft report on groundwater and soil remediation scenarios for a creosote-contaminated Superfund site
- Assisted in an analysis of the fuel ethanol market to determine if refiners could have used ethanol to meet federal reformulated gasoline mandates instead of MTBE during the 1990s

**Labor**

- Conducted analysis as a precursor to a public-interest arbitration involving transit districts
- Described the impact of economic turmoil and potential deflation on public interest arbitration
- Calculated lost wages resulting from wrongful termination of public school custodians
- Analyzed losses to a firm due to former employees' breaches of restrictive employment-contract covenants regarding future employment with a competitor

**Personal Injury/Wrongful Death**

- Calculated economic damages in a wrongful death lawsuit
- Calculated lost wages and presented expert testimony in a personal injury case

**Other**

- Developed a statistical model and calculated damages caused by the difference between Truth In Lending disclosures versus final loan documents
- Calculated damages to a father denied access to his child for 17 years
- Calculated reimbursements to families who adopted foster children as part of a class action settlement
- Calculated damages suffered by an auto dealership and service department stemming from the violation of non-solicitation and non-compete clauses in an asset purchase agreement
- Evaluated the potential economic effects of the U.S. Department of Agriculture and California Department of Food and Agriculture's proposed eradication of the Light Brown Apple Moth
- Reviewed and conducted analyses in order to determine specialty forest product harvesters are compelled to sell to a shed the brush they picked under the permit that shed issued them
- Analyzed the impacts of Measure 37 (property rights limitation) on the State of Oregon
- Addressed the economic issues of telecommunications firms' challenge, under the Telecommunications Act of 1996, to the City of Portland's franchise-fee agreements for use of the municipal right-of-way

## Other Analyses

**Education**

- Designed and implemented a randomized evaluation of the Safe and Civil Schools program with the Fresno Unified School District
- Developed a method for calculating and reporting student achievement growth for a school accountability program in Seattle, Washington
- Evaluated the effectiveness of the New School, a public-private partnership school in Seattle, Washington

- Evaluated the effects of ASPIRE (a program to increased college enrollment among Oregon high school students)
- Reviewed and evaluated current research on using student test scores to assess school performance for Seattle Public Schools
- Developed a district report card system for several Oregon school districts

  Described the Hispanic-White and Black-White achievement gaps in Oregon schools
- Reviewed and evaluated current research on the effectiveness of the Safe and Civil Schools program, and worked with clients to develop and implement additional program evaluation.

**Public Policy**

- Described the likely impact of a proposed tax increase on taxable income and economic growth
- Evaluated the effect of enterprise zone tax incentives on economic development
- Developed a model and analyzed data to estimate gross revenues for video, voice, and data services at the city level for the League of Oregon Cities
- Reviewed and evaluated current research on the impact of increased hospital supply on local health care markets
- Provided data collection services to determine garbage and yard debris can weights and set-out rates for Eugene residents.

**Real Estate**

- Analyzed the effect of Seattle's Natural Drainage (low impact development) Projects on neighboring property values
- Analysis of the Effect of Regulations on Housing Prices in Greater Boston

  Ward assisted Harvard Professor Edward L. Glaeser in preparing a report for Harvard's Rappaport Institute for Greater Boston and the Pioneer Public Policy Institute that estimated the effect of local regulations on housing supply and housing prices.
- Analysis of Neighborhood Price Dynamics

  Ward assisted Harvard Professor Edward L. Glaeser on a paper detailing the sources of housing-price cycles at the neighborhood level.

**Labor Markets**

- Calculated potential economic costs associated with proposed change in Oregon's meal and rest break rule
- Analysis of the Long-Term Labor Market and Family Outcomes of Harvard Undergraduates

  Ward assisted Professors Claudia Goldin and Lawrence Katz of the Harvard Department of Economics in creating a large and valuable data set on Harvard College students that will help track labor market and family outcomes in the years following their entrance/graduation. This information will allow the examination of possible gender differences in career and family outcomes.

## Publications

"The Causes and Consequences of Land Use Regulation: Evidence from Greater Boston" *Journal of Urban Economics* 65(3): 265-278 Glaeser, E., and B Ward.

"Myths and Realities of American Political Geography." *Journal of Economic Perspectives*. Glaeser, E., and B. Ward. Spring 2006.

Regulation and the Rise of Housing Prices in Greater Boston. Glaeser, E., J. Schuetz, and B. Ward. Cambridge, MA: Rappaport Institute for Greater Boston, Harvard University, and Pioneer Institute for Public Policy Research. 2006.

"Distance and Social Capital: Can Isolation Be Good?," in *Social Interactions and Economics*, Ph.D Dissertation, Harvard University, March 2006

"Does Reunion Attendance Affect Alumni Contributions?: Evidence from the Harvard College Classes of 1990-1999," in *Social Interactions and Economics*, Ph.D Dissertation, Harvard University, March 2006,

"Economic Bridges Falling Down." *Eugene Weekly.* Ward, B. and E. Whitelaw. October 8, 2008.

"The Economy: Now What? The Economists: Ward and Whitelaw" *Oregonian*, Ward B. and E. Whitelaw. September 20, 2008.

"Dream On." *Oregon Quarterly*. Ward, B. and E. Whitelaw. Winter 2007.

"Still the Land of Opportunity?" *Oregonian*. Tapogna, T., B. Ward, and E. Whitelaw. March 2006.

"The Price Is (Not) Right." Commonwealth: Growth and Development Extra. Glaeser, E., J. Schuetz, and B. Ward. January 2006.

## Recent Speeches and Presentations

"Does Low-Impact Development Affect Property Values?: Evidence from Seattle's Natural Drainage System Projects." Water Environment Foundation Sustainability 2008 Conference., June 2008.

"Compensation for ROW Access Under the Telecommunications Act of 1996: Fiscal Issues Related to Communications Services." NATOA 27th Annual Conference. Sponsored by the National Association of Telecommunications Officers and Advisors. Portland, Oregon. October 2007.

"Outside the Light: The real factors driving Eugene/Springfield's Economy." Eugene-Springfield Leadership Program. Sponsored by the Eugene Area Chamber of Commerce. Eugene, Oregon. October 2006.

"Deregulating the Housing Market." Preserving the American Dream Conference. Sponsored by the American Dream Coalition. Atlanta, Georgia. September 2006.

## Teaching

Visiting Assistant Professor, Lewis and Clark College; Courses: Intermediate Microeconomic Theory, Econometrics, Public Economics, Environmental and Natural Resource Economics, Spring 2008 & Fall 2009.

Visiting Adjunct Instructor, University of Oregon; Courses: Labor Economics, Spring 2009.

Tutorial Leader, Harvard College; Courses: Everybody's Doin' It: Social Interactions and Economics, 2002-2006, Senior Thesis Tutorial: Labor, 2004-05.

Teaching Fellow, Harvard University; Courses: Intermediate Microeconomic Theory, Intermediate Macroeconomic Theory, Microeconomics: A Policy Tool for Educators, 2001-2003.

Teaching Assistant, University of Oregon; Courses: Principals of Microeconomics, Urban Economics, Economy of the Pacific Northwest, 1998-1999.

# EFFECTS OF REDUCING LOCAL CONTROL ON THE AVAILABILITY AND AFFORDABILTY OF BROADBAND

Dr. Constance Ledoux Book, Ph.D

## About the Author

Dr. Book holds Ph.D. in Journalism and Mass Communications from the University of Georgia. She is an associate professor and associate dean in the School of Communications at Elon University in North Carolina, and has extensively studied the effect of changes in state laws on deployment of competitive communications systems.

## I. SUMMARY OF REPORT

I was asked to examine the question of whether one is likely to increase the availability or adoption of broadband by limiting the compensation/public benefits that local governments may obtain from entities that place facilities in the rights-of-way to provide particular services, or by regulating local management of public property. Based on my work, I conclude that such a course is actually not likely to lead to increased broadband deployment, but instead evidence finds it is highly likely to result in an increasing digital divide. One can turn to recent preemption of local oversight in video franchising around the United States for evidence of these end results.

## II. THE EFFECT OF STATE LAWS LIMITING LOCAL CONTROL OVER COMMUNICATIONS SYSTEMS

Amid a flurry of lobbying between 2005 and 2007, telephone and cable companies asserted that local regulation was a barrier to increased competition in offering competitive multichannel services. Several researchers, including myself, have now examined the effect of removing local control and reducing costs of entry, and have discovered that the approach adopted by the states does not appear to significantly increase competition or reduce rates, and has had significant, adverse effects, increasing the gap between the information rich and poor, for example, and by (in many cases) leaving communities without necessary funding or facilities to support institutional networks or public, educational and government channels.

The first state to remove the local franchising process was Texas in 2005. A study using zip code analysis and the 2000 census found that the activity of new marketplace entrants in Texas following passage of the law was only in wealthier neighborhoods with high home values and lower minority populations. These neighborhoods benefit from competition, not the establishment of new service and extension of broadband or cable services to new areas of the state.[1] Roughly one year after local oversight was eliminated, Verizon had launched FiOS in 13 communities in Texas. According to census data, households in these communities:

- Earned almost twice as much in annual income as the average Texan.
- Were 70% as likely to be White non-Hispanic
- Had home values that are more than double that of the average Texas home
- Had virtually non-existent poverty levels (500% lower than the State of Texas)
- Were twice as likely to have earned a college degree

The Texas Public Utilities Commission in January 2010 released their own inquiry using the same variables and as part of their overarching effort to monitor the impact of the newly deregulated marketplace.[2] The PUC also found evidence of the practice of redlining. The PUC writes,

"The Commission's study indicates that there are patterns of deployment of cable and video facilities by some companies in various areas in which rates of deployment of facilities positively correlate with household income or home value or negatively with the percentage of minorities in the area." (PUC study, p. 5).

Another example of removal of barriers in promises of the roll-out of more services like high-speed broadband is in the state of North Carolina. On July 20th, 2006, North Carolina adopted a state franchising law that established sunsets to local cable franchises and all public benefits negotiated with those agreements. The new state law raised telecommunications taxes and effectively removed the responsibility of the service provider to provide financial support for public, education and government channels; those channels must now be supported out of general fund revenues received from all citizens, without regard to whether the taxpayer subscribes to cable and can receive the PEG channels. Other negotiated local public benefits were also eliminated under the new law. In the City of Greensboro, the local government had negotiated an institutional network that provided broadband to all city government buildings and local schools passed by the cable system. This public benefit of the local franchise was

---

[1] Book, C. and Meyers, S. (2007). Simple Questions--Complex Answers: An Analysis of the Impact of SB5 on Texans. Presented to the National Association of Telecommunications Officers on April 1, 2007.

[2] Report to the Texas Legislature and Sunset Advisory Commission (December, 2009). Cable Service and Video Service Provider Study. Available online at www.puc.state.tx.us/cable/projects/37172/2009_Cable_Service_Study.pdf.

valued at millions of dollars annually. That public benefit now lost under the new state law, shifted to a payable service by the City of Greensboro and every local taxpayer.[3]

More unfortunate for local governments and the citizens they serve in North Carolina is that under this new state model, there has been NO significant entry by AT&T (or any other service provider) who during the passage of the legislation testified that they would bring local competition would reduce communications service costs for every North Carolinian.

Elimination of local oversight is having the same result around the country. Wisconsin found that the elimination of local oversight did result in new competition for a number of state residents, but since the state's law passed rates had climbed 28% rather than saving customers up to $129 dollars a year as was promised during lobbying for the bill.[4]

A more compelling study was recently conducted by the University of Michigan.[5] In an effort to understand if the reduction of perceived barriers to entry in 2007 had led to increased competition, better rates and more services, a comparative analysis of Michigan to Texas and California was conducted. Researchers did not find evidence of more availability of services, or a number of new entrants in the marketplace and certainly not a reduction in prices. In fact, Michigan saw a 22% increase in real costs for video services and only one new provider had entered the market. California saw a sweeping increase of 69% in real costs when corrected for inflation.

Other studies also indicate that elimination of local control does not result in more competition of greater deployment. A recent study by Dr. Alan Pearce as part of a suit brought against the City of Portland by Time Warner Telecom presented evidence that management and policies related to use of the public ROW did not create barriers to entry. Pearce testified that based on data collected in communities of similar size to Portland that the fees charged for access to rights-of-way did not reduce competition. In fact, Portland was home to a competitive telecommunications environment that allowed users of communications services to effectively switch from one provider to another, a key indicator of market health. Pearce also concluded

---

[3] An Act to Promote Consumer Choice in Video Service Providers and to Establish Uniform Taxes for Video Programming Services. General Assembly of North Carolina. NC 2006-151.

[4] Stein, Jason (October 24, 2009). Price promises of backers of cable bill fall flat. Wisconsin State Journal. Retrieved from http://host.madison.com/wsj/news/local/govt_and_politics.

[5] Report of the Center for Science Technology & Public Policy. University of Michigan. Statewide Video Franchising Legislation: A comparative study of outcomes in Texas, California and Michigan. Released March 2009.

that the City's active right-of-way management in itself created an environment which permitted equitable entry into the marketplace and that the public benefits negotiated in the agreements permitting entry were long-standing, and reflected an appropriate balancing of competitive interests and taxpayer interests.[6]

Entry costs caused by local control of rights-of-way or local conditions on entry (such as reasonable build-out requirements and compensation requirements) are not significant factors deterring competition and build-out. In the absence of some control, companies appear to invest money where profits are highest, rather than expand service to under-served areas.

## II. IMPACTS OF LOCAL CONTROL

In fact, the local regulation of one type of communcations system - cable television systems - has resulted in increased broadband deployment around the country. With local governments providing the primary cable television oversight in the United States, cable television was invented, launched and today is a $115 billion dollar industry with more than 1200 companies, operating almost 8,000 cable systems, **providing 92% of American homes with broadband availability** and franchise fee payments to local governments of $3 billion dollars.[7] The sometimes difficult negotiations to establish and renew local cable franchises have resulted in a flourishing and profitable industry and improved the quality of life of citizens in the United States.

Four key issues often dealt with during these local negotiations have resulted in significant broadband availability in the United States. The first is what is commonly called "build out" requirements. Cities established metrics with the local cable operator to ensure that all citizens in their communities would have access to service independent of household wealth. This is usually measured by a density formula with a set number of homes required per square mile. As a result of density requirements, as communities transitioned from urban to suburban environments, cable television and now broadband availability moved with it.

---

[6] Time Warner Telecom of Oregon, LLC v. City of Portland (2004). Expert report of Alan Pearce, Ph.D. CV 04-1393-MO. Pearce also examined the presence and impact of the City of Portland's institutional network on the market. He found (contrary to claims by some providers) that the institutional network did not create a barrier to entry, and instead contributed to healthy competition and a positive economic environment.

[7] Industry data is provided by the National Cable Television Association on their website at www.ncta.com.

Secondly, cities often engaged in negotiation related to the cable television system capacity. As the infrastructure to support multiple channels was pole attached or placed underground, cities negotiated the quality of the line being laid. These negotiations often led to more robust, and frankly more expensive, lines being placed to ensure that as the entrepreneurial spirit of cable television researchers found new and exciting services to entice the American people, city systems would be well-positioned to roll them out. As a result of this negotiation, when the Internet became a consumer product in 1993, cable television was more prepared than any other wireline service in the United States to repurpose themselves from a multichannel only provider, to a multichannel and broadband provider. Using the same wire to offer two services to the American people and now 2 in 3 cable subscribers are also broadband subscribers. **Cable delivered broadband outpaces the telephone industry's state regulated DSL service or any other type of broadband service in the United States.** The Pew Internet and American Life projects most recent tracking data reports 41% of Americans use cable to access broadband, while just 33% use the state and federally regulated telephone industry's DSL service and the remaining rely on satellite and wireless broadband services.[8]

Capacity building is not an easy negotiating point for local communities. When stalemates started to occur in the mid-1990s as more and more Americans demanded upgrades to support broadband and multiple channels and balked at the rising costs of cable, the Federal Communications Commission (FCC) assisted in a voluntary federal conversation about the importance of the public interest work of cable television companies. These "social contracts" were negotiated voluntarily between cable companies and the FCC to demonstrate their commitment to upgrading their systems in a timely fashion and providing local public benefit services, such as wiring American schools at no cost to receive cable and providing at least one free high speed internet connection. Today, the cable industry reports it has provided Cable in the Classroom to more than 81,000 schools.[9]

The third asset historically negotiated by local governments is the local presence of the cable company. Most franchises include requirements related to having local offices to serve customers. This results in a locally, more responsive cable management structure that is in tune to the unique characteristics of the community they serve and is able to respond as local demographics and needs and interests change. For example, local cable companies often work with permitting offices and local construction to ensure that as new homes and neighborhoods are permitted and launched that good planning for telecommunications is included. Having decision-makers on the ground has resulted in more thoughtful and comprehensive customer service. Local presence adds to the value of cable offerings, as well as a healthy and responsive business community.

[8] 2009, April. "Home Broadband Adoption." Pew Internet and American Life Project. Available at www.pewinternet.org/reports.

[9] Samples of social contracts are available electronically on the FCC's website www.fcc.gov.

The fourth asset of local government's relationship with cable companies in the deployment of broadband is the term of the franchise. These are typically 10 year agreements with check – points annually. This ongoing renewal process creates windows for conversations and further negotiations with the local cable provider. As new technologies are developed, the local franchise agreement is designed to respond on behalf of its community.

With local oversight the deployment of broadband is likely to be more responsive and efficient to local needs. Local planning technology teams are a key part of initiatives in Kentucky, Tennessee, Ohio and other area of the country. These local planning teams identify broadband gaps in their communities and sit at the table with local service providers, educators, business and governmental entities to set a plan of action to resolve the issue. These local efforts and established pathways are a critical ingredient to the effective deployment of broadband in our country.

# ISSUES ASSOCIATED WITH DEVELOPING COST-BASED PRICES FOR USE OF PUBLIC RIGHTS OF WAY AND OTHER PROPERTY

BY

GARTH T. ASHPAUGH, CPA

ASHPAUGH & SCULCO, CPAS, PLC

## ABOUT THE AUTHOR

Mr. Ashpaugh has been engaged in utility matters and regulation full-time for over twenty years. His previous experience includes consulting since 1991 and working as Audit Supervisor with the Missouri Public Service Commission for over 12 years. He has a BS, Business Administration, from the University of Missouri, holds licenses as a Certified Public Accountant in the states of Missouri and Florida and maintains professional affiliations with the American Institute of Certified Public Accountants and National Association of Telecommunications Officers and Advisors. He has performed in-depth analyses of the costs of local governments to own, mange and maintain public rights-of-way in Maryland, New Jersey, North Carolina and Tennessee. Mr. Ashpaugh has worked extensively in the area of rates. He has analyzed wholesale electric rate filings, assisted in the negotiation of electric rates and charges under contract rates, and testified on electric cost of service. He performed and supervised cost of service studies in over thirty cases before the Missouri Commission. Since leaving the Commission, Mr. Ashpaugh has analyzed: rate filings of the electric utilities for clients; cost of service for contractual purchases of electricity by municipal power agencies from investor-owned utilities; maintenance expense of an electric generating cooperative, and determined wholesale and retail cost of service rates for a New England electric cooperative emerging from bankruptcy. He has analyzed accounting and rate issues regarding issues before the Federal Energy Regulatory Commission (FERC), including the 1990 Amendments to the Clean Air Act and pronouncements of the Financial Accounting Standards Board (FASB). He has provided expert testimony in rate cases regarding cost of service, mergers and acquisitions, and construction audits; these included telephone, electric, gas, and water utility companies. Mr. Ashpaugh has performed cable rate reviews, financial analyses related to franchise renewals and transfers and franchise fee reviews for franchisers in Arizona, California, Florida, Maryland, Michigan, New Mexico, North Carolina, New York, Ohio, Pennsylvania, Tennessee, Virginia, Washington, Wisconsin and Wyoming. He has assisted in the filing of comments with the Federal Communications Commission ("FCC") regarding rate regulation of cable and other matters. He has made presentations in Florida, Georgia, Hawaii, Massachusetts, New Mexico, Oklahoma, Oregon, and South Carolina on cable matters. He is a current Board member of the National Association of Telecommunications Officers and Advisors ("NATOA"). He has made presentations regarding cable and telecommunications for the American Public Power Association, Northwest Public Power Association, Massachusetts Municipal Wholesale Electric Corporation, Municipal Electric Authority of Georgia, Florida Municipal Power Agency and NATOA. He organized and chaired a conference and seminar on telecommunications for the Orlando Utilities Commission.

## CONCLUSIONS

Telecommunications providers and other users of the public property often suggest that local governments should be limited to recovering only the out-of-pocket costs associated with use of the rights-of-way, or other government property (including parks, waterways and physical structures), and should not be permitted to recover the fair market value of the property used by the utility. Whatever the merits of allowing someone to pay less than fair value of property used may be from an economic point of view, what is clear is that it is much easier to establish and administer charges that are market-based than it is to establish and administer cost-based prices.

Setting rates for public rights-of-way (PROW) and similar property based on costs has all the complexities and difficulties of cost-based regulation of utilities. It has the additional disadvantage of involving substantial expenses that must be spread across a much more volatile base of users than was the case where traditional utilities were concerned. In the course of a year, one could begin with one user; add another for part of a community; add another in yet another part of the community; and each of those changes could substantially alter cost allocations (just as it would substantially alter cost allocations for a telephone company if its base trebled in one year). The following year one company could go out of business, meaning costs for the remaining companies could increase by fifty per cent.[1]

By contrast, it is much simpler to establish a fee for a period of years based on fair market value. For example, PROW compensation as a rent for use of PROW in the form of a percentage of revenues has been around for over 100 years. The simple reasons for its longevity are ease of administration for the local government and for the PROW user and the ability of the user to phase-in the PROW charges as the business develops. An alternative approach is to set charges based on per foot fees. Some jurisdictions do both, setting per foot fees where a user seeks only to cross through a jurisdiction, or go from one specified point to another, while using gross revenues as a measure of value where a provider seeks the right to place facilities throughout the community.

There is in fact a substantial risk that setting fees based on costs will (a) require each affected locality to conduct very expensive studies; (b) will lead to lengthy, contested proceedings, much like utility cost of service regulation led to such proceedings; and (c) may under-recover costs from telecommunications providers, requiring localities effectively to subsidize PROW use from general fund revenues.[2] Moreover, because, as indicated above, a changes in the local governments costs or ways of administering PROW, in the number of providers or amount of PROW used by providers, in the number or width of streets, and or in the cost of facilities in the streets, cost studies will need to be updated regularly, and cost disputes would have to be

---

[1] In addition to charging these rental fees, governments may charge a fee to cover certain special costs associated with a particular request to use the PROW by a particular provider – such as a charge to cover the cost of reviewing a permit application. This is consistent with general private rental practices, where particular costs are recovered in addition to general rents. Such fees – precisely because they are not intended to cover all costs, but only a small subset – are not as difficult to set.

[2] It is important to emphasize that I am not assuming that gross revenues-based fees charged on a per foot basis recover *more* than the historical costs incurred by a local government in connection with the PROW (or other property). There is significant evidence, for example, that total charges collected through franchise fees for use of the PROW nationally do not recover all costs associated with the PROW. Because there are multiple users of the PROW, particular industries have an incentive to propose or litigate for rate formulae that ignore joint and common out-of-pocket costs, as well as opportunity and other costs (return on investment).

resolved regularly. The result will be to add substantially to overall costs and lengthy processes to change rates. This is important because if government is required to devote its limited resources to cost studies (or alternatively, charge little or nothing and subsidize entry through general funds), government will not be able to devote resources to the other functions it needs.

To give a sense of the complexity of the efforts involved in establishing rates for use of PROW based on costs, below I describe the work involved in conducting one possible model for a cost study. It is important to recognize that even the study below does not recover all costs – for example, it ignores disruption costs associated with the PROW.[3] Likewise, the manner in which the study is conducted depends on unique characteristics of the local community. In some Western communities, for example, the community is acquiring additional property that will be used solely by communications providers. In other communities, this is not financially or physically feasible, meaning that the telecommunications utility will share property with other utilities, which means that additional cost allocation issues arise and congestion in the PROW. In other words, this paper simplifies the cost-identification and allocation process.

## PROW COSTS

The local government incurs several types of costs to own, manage and maintain the PROW. In cities, some PROW costs are specifically coded as right-of-way costs, and more easily identifiable. .The departments whose work is typically so identified include public works / engineering (street maintenance/repair, landscaping, vegetation control), fire and police (accidents, traffic control, security), planning (PROW improvement studies), finance (PROW accounting/financing activities), leisure services (i.e., parks) and codes administration (code compliance, permitting). [4] [5] In addition, many other departments provide services to support PROW management whose costs are not necessarily identified as PROW costs. These support functions include, but are not limited to, legal, human resources, personnel benefits, printing, building services and rent, information services and administration. Since these cost centers vary within each local government based on their individual methodologies for accounting, budgeting and administration, there is not one single formula or methodology that can be applied. While there are accounting guidelines for local governments, there is nothing equivalent to the uniform accounting systems that the Commission established in connection with rate regulation of utilities.

## STUDY ISSUES

### COLLECT AND REVIEW DATA

As suggested above, local government does not have any one department that is responsible for PROW. For example, PROW usage may be initiated in the permitting department, but the public

---

[3] Disruption costs are of two types and should be identified separately. The first is the cost to the local government from the interruption of normal use of the PROW, such as delays of police and fire in responding to emergencies and from congestion or rerouting of traffic. The second is the impact on the public and businesses from the interruption of normal use of the PROW, such as increased travel time and loss of revenue.

[4] Repair is the cost to restore the right-of-way, in compliance with the requirements of the local government, to the same or better state existing prior to the placement of structure, equipment, wires, or other facilities in the PROW.

[5] Degradation is the impact on the life of the street, sidewalk, landscaping and other amenities due to use of the PROW.

works department may not know of the usage permit until after the PROW activity is completed. Engineering and planning may design changes to the PROW and have no knowledge of the impact on the PROW users until they are separately identified. Even so, engineering and planning must include PROW usage in their designs and changes, and that usage adds to the cost of planning and implementing any project.

Until the recent adoption of Government Accounting Standard 34 ("GAS 34"), local governments did not maintain accurate accounting data and cost support for assets and infrastructure (buildings, streets, bridges, vehicles, furniture, etc.) The largest asset group on the books of any local government typically is its streets and roads. There is also other assets that must be taken into account in determining PROW costs, since these assets are either used by or benefit PROW users. Landscaping, for example, may prevent flooding of manholes and access points. All these assets must be identified, and fixed and variable costs associated with them identified and classified.

Identifying annual, non-capital expenses associated with PROW also presents challenges. In only a few instances can specific identifiable costs be directly assigned 100% to PROW. Public works (or the department responsible for street maintenance) may also maintain other facilities. The costs identified with maintenance activity must be appropriately apportioned to these other activities, offset by any compensation is received. Many costs are shared across activities, and in order to make these allocations, an appropriate methodology must be used. In other departments, activities must be identified to determine PROW-related activities. For labor-related costs, manpower estimates (full time equivalents or FTEs) may be needed where an employee works part of the time on PROW, and part of the time on other issues. In sum, while it is dangerous to over-generalize, when we perform analyses of costs, we will often find the following, and undertake the following investigation to identify costs.

**Departments typically involved <u>directly</u> in PROW Activities**
These departments usually have direct involvement in PROW activities and will have a portion of their annual costs allocated to the PROW.

- Public Works
- Fire/Rescue
- Police
- Finance
- Parks
- Codes
- Permits

**Departments which incur costs that should be allocated to PROW Activities**
These departments usually have indirect involvement in PROW activities supporting the functions of government and will have a portion of their annual costs allocated to the PROW.

- Human resources, benefits, retirement
- Insurance
- Legal
- Administration

**Typical Data Needs**

- A description of how each department is involved, directly and indirectly, with streets, roads and rights-of-way.
- The overall budget and actual costs of each department / function for the most recently completed fiscal year and for the current fiscal year to date.
- The appropriate methodology used to allocate costs within the department or function.
  - Total number of FTE's and the FTE's devoted to PROW activities
  - Total number of employee hours and the employee hours devoted to PROW activities
  - Total number of PROW projects performed
- Support for the allocation of costs attributable to PROW.
- Quantification of PROW (lane miles, linear feet, cubic feet)
- Number and list of known users of PROW

PROW COST ANALYSIS

The costs attributable to PROW activities are normally determined through an analysis that allocates/assigns department-level costs using FTE and/or other appropriate data. For example, public works department costs may be allocated based on the number of FTE's actually devoted to PROW activities, while police department costs may be allocated based on the number of calls occurring in the PROW, or on some other methodology.

Once the total PROW costs have been determined, the next step is to develop the appropriate user rates or charges.

DESIGN PROW USER FEES/RATES

Once quantified, PROW costs must be apportioned between the "users" of PROW. Local governments do not maintain data on the specific usage of PROW. Obvious users include vehicle, bicycle and pedestrian traffic in addition to utility users (electric, water, wastewater, gas, telephone and cable). Other uses may include retail, private functions and public functions. User fees/rates are designed using PROW information (feet, lane miles, etc) from GIS data, maps and other sources and usage of the PROW. In many instances, usage by telephone, cable and data users is deemed confidential by the user and may not be provided or may not be provided in a format usable by the local government. Ultimately, the costs must be assigned to each user group and then apportioned within those groups to develop rates. The determination of rates using a defendable methodology that appropriately allocates costs to each user group and then develops rates within those groups for PROW usage is also a major study.

The above approaches do not consider differences in above-ground versus below-ground PROW usage. If the local government finds it necessary or preferable to have different rates for above and below ground PROW usage, then PROW costs must somehow be split between above and below ground. However, this presents difficulties since most local governments do not maintain data in this fashion, and attempting to segregate the two could involve significant difficulties. The installation of above-ground facilities do not, for example, degrade rights of way in the same way that trenching a conduit would. On the other hand, the placement and maintenance of poles has other cost consequences, because the poles may preclude or make it significantly more expensive to expand sidewalks, widen roads, landscape, control vegetation and so on. These are just a few examples. The point is that attempting to distinguish between types of uses based on cost will itself add a layer of complexity to the rate-setting process.

The above approaches also do not consider user rates for special areas of the city or county. It is not unusual for downtown areas to have a large number of PROW users and congestion in the use of PROW. This congestion presents special issues for the local government in maintaining and repairing PROW and meeting their obligations to protect existing users. Special rates may need to be developed to recognize the increased costs to place additional users in these areas and to encourage PROW users to use alternative routes. Again, that adds to complexity of the process.

**STUDY CHALLENGES**

In our experience, conducting a study will cost tens or hundreds of thousands of dollars, and require significant, internal efforts that necessarily detract from other governmental activities. Further, cost analyses will likely be contested, adding to the cost, burden and timeliness of implementation. It is easy to predict that if the FCC were to attempt to establish a cost standard, or even to require cost studies, it is likely to lead to substantial costs for local government, substantial litigation and confusion to the pricing structure for use of PROW while the matter is litigated.